

6352
44

Hitchcock's Machine Tool Blue Book

JANUARY, 1936

THIRTY-FIRST YEAR



**COLLETS
FOR YOUR
LATHES AND
MILLING MACHINES**

Attractive Prices—Ask For Catalog No. 35

4 styles in stock for Hendey, American, Monarch, Hardinge, Rockford, Sidney,att & Whitney, South Bend, LeBlond, Springfield, Cincinnati, Sebastian, Etc., Lathes.

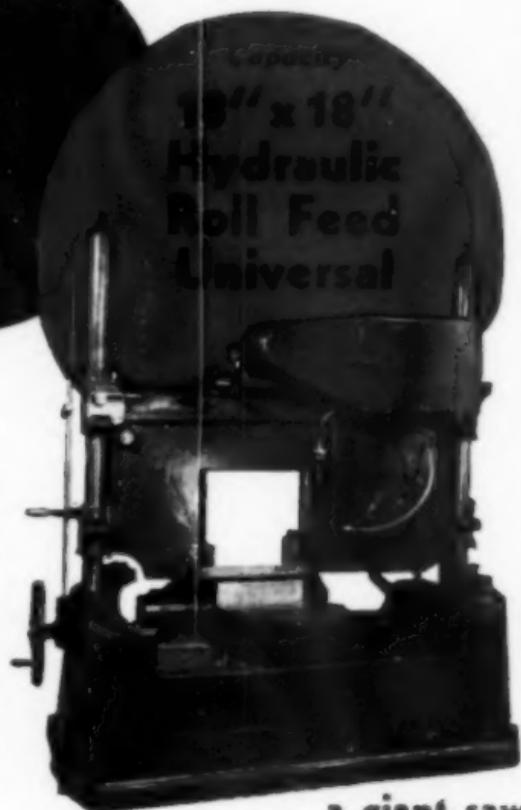
4 styles in stock for Van Norman, Hardinge, Burke, Becker, Etc., Milling Machines.

Order from nearest stock — Stocks constantly maintained at:

ARDINGE BROTHERS, INC.,	- General Offices & Factory,	- ELMIRA, NEW YORK
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ECCLES & DAVIES MACHINERY CO., INC.,	1910 Santa Fe Ave.,	LOS ANGELES, CALIF.

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

The Saw of
Tomorrow



a giant saw

for
Big Work
especially designed
for
Steel Mills,
Warehouses,
Forge Shops,
Die Shops,
and all other heavy
duty *large size* work.

**The NEW
MARVEL
Number 18
Hack Saw**

Here is a new thing in saws, especially designed for the larger sizes and tougher alloy steels of *today* and *tomorrow*. This new saw introduces two important new features in power saws (1) The roll stroke (a new action similar to the chip-clearing action of a carpenter's hand saw) that ends "dragging" of blade through the cut; and (2) New *low pressure* hydraulic feed — so simplified that anyone can understand, operate and maintain it. This new giant saw sets a new standard and a pattern for the saws of tomorrow.

Write for Bulletin 18

ARMSTRONG-BLUM MFG. CO.
341 N. Francisco Ave., CHICAGO

S. S. WHITE Super-Quality CUTTING and GRINDING TOOLS

- FLEXTOOLS
- FLEXARMS
- BURS
- DRILLS
- ROTARY FILES
- ABRASIVE POINTS
- DISKS
- WHEELS



WRITE
for
CATALOG
TA

S. S. WHITE FLEXTOOLS
(small, portable, flexible shaft-driven
outfits, complete with
motor and handpiece)
will save time and labor
for you on a hundred and
one different shop operations
such as die-sinking,
drilling, grinding,
polishing etc. Every shop
can profitably use at least one.
CATALOG TA shows the differ-
ent types and sizes.

*Your request brings a copy of CATALOG TA
with price list included. Write today.*

● **The S. S. WHITE DENTAL MFG. CO.** ●
INDUSTRIAL DIVISION

10 East 40th St., Room 2310H, New York, N. Y.

The New GROB Open End



BAND SAW

for
INTERNAL
and
External
Sawing

No Welding
Electrically
Controlled

Cutting Speeds
50-75-100-150 F.P.M.

Write for Circular

GROB FILING MACHINE

Type B-3
BENCH MODEL
\$95.00

Motor & Switch Extra

Simply constructed.
easy to operate. Makes
smooth, straight, clean
cuts with speed and
accuracy.

**Larger Sizes
Also Available**

*Write Today for
Complete Information*



GROB BROTHERS
9700 National Ave.,
West Allis, Wisconsin

Hitchcock's
**Machine Tool
Blue Book**

**Selected
Circulation**

**20,000
Monthly**

JANUARY, 1936

THIRTY-FIRST YEAR

30 Years of Service

The December issue of the "Blue Book" completed 30 years of practical service.

To our readers we extend our heartiest wishes for a year of greater achievement and prosperity, with the hope that they may find the "Blue Book" even more useful than ever.

To our advertisers we give our sincere thanks for their loyal support, in return for which we have endeavored to give them full value received.

But the past, with its trials and tribulations, is behind us. We are now looking to the future with hope and confidence.

Based upon the business of 1926, the sale of machine tools and other shop equipment is practically normal. The outlook for 1936 is for a further stepping up in demand.

Now is the time, if ever, for the manufacturers of metal-working machinery to tell the world what they make. Turn to pages 10 and 11 in this issue, which tell how that may be done most effectively for every dollar expended.

THE PUBLISHERS

Published By

Hitchcock Publishing Co.
508 S. Dearborn St., **Chicago, Ill.**

Consult the Classified Finding Index for your requirements

THE LAST WORD IN ADVANCED GRINDERS

Setting new standards of efficiency, convenience and safety, this new complete line of Delta Grinders is something radically better than any grinder ever before presented. Wheels are balanced to within 1/100 of an inch-ounce. The new Twin-Lite safety shields offer perfect vision on each side and the face of the wheels, double seal ball-bearings are lubricated for life. Accurate tool supports, adjustable spark guards, swinging water pots—every feature has been considered to make these grinders the most efficient yet developed for all-around shop work. And best of all they are priced amazingly low.

SPECIFICATIONS

WHEELS: Highest grade 7 in. Carborundum, precision balanced. $\frac{3}{4}$ in. face $\frac{5}{8}$ in. hole. 60 grit, grades J. & K.

SAFETY SHIELDS: Safety Glass. Two bakelite sockets in each shield for bayonet base bulbs. Armored cable. Toggle switch wired to lamps.

GUARDS: Wheel guards meet all safety codes. Built-in dust chute. Adjustable spark plugs.

TOOL SUPPORTS: Fully adjustable, permitting grinding on both sides and face of wheel. Precision-machined.

WATER POT: on swing bracket (bench models) or built-in (pedestal model). Ample size. Instantly detachable.

BEARINGS: Precision double-seal New Departure ball bearings. Lubricated for life.

BODY: Heavy, well-proportioned cast-iron. Extended end housing provide plenty of room around wheels.

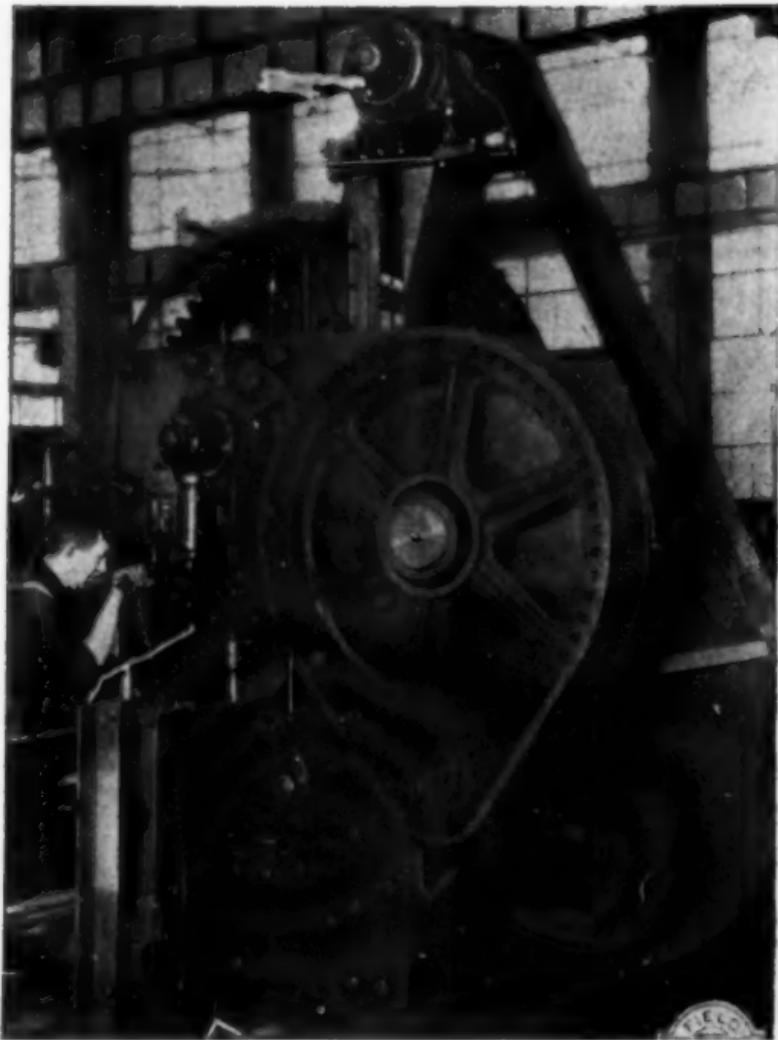
MOTOR: One-third H. P. 3450 R. P. M. built-in motor standard equipment on motor-driven bench model. Pedestal model either one-third H. P., single phase or one-half H. P. three phase, 3450 R. P. M.

Available in three different styles—belt-driven, motor-driven, and pedestal models, every one offering the same exacting specifications and the same exclusive features.

Delta Mfg. Co.

For name of nearest Delta dealer, full details, description, prices, write to the Delta Manufacturing Co., 604 E. 10th Vienna Ave., Milwaukee, Wisc.





**"Buffalo" Billet Shears and
Special Bar Cut-
ters for Lower Costs—**

Hundreds of plants are saving the cost of a Buffalo Billet Shear or special bar cutter annually with one or more of these machines—cut any shape—in capacities up to 8- $\frac{3}{4}$ " rounds. Write for prices.

BUFFALO FORGE CO., 161 Mortimer St.,
Buffalo, N. Y.

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

Made in three
sizes of single
and multiple
spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

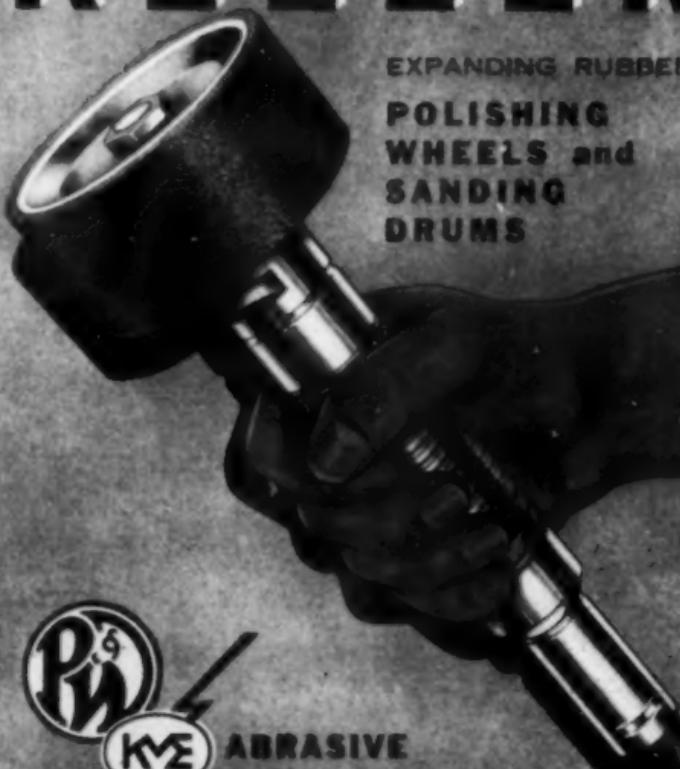
Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

KELLER

EXPANDING RUBBER
POLISHING
WHEELS and
SANDING
DRUMS



ABRASIVE
BELTS and SLEEVES

SEND FOR THIS BOOK

PRATT & WHITNEY CO.
HARTFORD, CONN.
KELLER DIVISION

The Growth of the "Blue Book"

In the past year the "Blue Book" showed a gain of 33 1/3 per cent in advertising over 1934.

This issue, which is the first in 1936, shows another increase of between 55 and 60 per cent over the corresponding month in 1935. This is a gain of over one-half.

Enough new business is already signed up to begin in February to show a further healthy growth.

A number of "Blue Book" advertisers are increasing their space for 1936—two of them from half pages in single color to full pages in two colors.

Others who advertised spasmodically in 1935 as "feelers" have given us term orders for 1936.

The above is simply a plain statement of uncolored facts, which speak for themselves. At least partial reasons for the healthy growth of the "Blue Book" are given on the following page.

Hitchcock Publishing Company

And Some Reasons For It

The main reason why the "Blue Book" is enjoying a healthy growth is because it produces results.

Another reason is that the water has been squeezed out of its rates.

The publishers believe they are safe in saying that it gives more—much more—practical advertising for each dollar expended than any other medium in its field.

Their policy has not been to charge all the traffic will bear, but rather to give to the advertiser the utmost of service for the amount invested.

The 20,000 circulation of the "Blue Book" is excellent. Besides other constant research work, it is checked annually with Dun and Bradstreet for responsible ratings. It also includes an extensive circulation to key men in large plants.

Manufacturers of machine tools and allied products who place the "Blue Book" at the top of their 1936 schedule will be well repaid.

508 S. Dearborn St., Chicago, Ill.



BENCH CENTERS

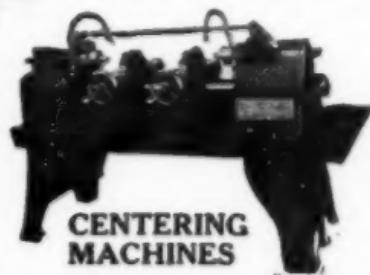
Save time and money in tool-rooms, inspection departments, repair shops, production departments and garages. Accurate, compact, portable. Adjustable heads. Quick-acting spindle. Seven sizes. Low price. *Write, today, for details.*



BALANCING TOOLS

Made in 5 sizes, with capacities from 800 lbs. to 24,000 lbs. Others for propellers, flywheels, pulleys, etc.

No. 56 illustrated, others available. Fast, accurate, an operation saver, a mighty profitable investment.



CENTERING MACHINES

These Sundstrand tools, like our Lathes and Milling Machines, cut costs and make work easier.
INVESTIGATE! Address our Dept. H for details.

Reduced Labor Time Costs

with



Wells

Metal Cutting Band Saws

WITH 50% faster metal cutting and no lost time in adjusting material or blade, enthusiastic users tell us they are able to pay for this simple dependable machine from savings made on time and labor costs. Using the band saw principle of continuous cutting, excessive friction is eliminated and the saw can be operated at high speed without the use of coolant. Long blade life as there are no sliding surfaces in a band saw and no wearing to make the blade cut untrue.

DEALERS WANTED

99% of trial installations have produced sales.

Wells Band Saws build up volume and add to your profits. Write today for details!

—Economical—

Simple to operate, sturdy construction, ability to cut all kinds, shapes, sizes of metal up to the capacity of the machine, make the Wells Band Saw an invaluable tool for maintenance and production work. Low first cost enables every metal working plant—large or small—to take advantage of the savings offered by the unit.

Send for the illustrated booklet today

WELLS MANUFACTURING CORP.

315 Seventh Ave.,

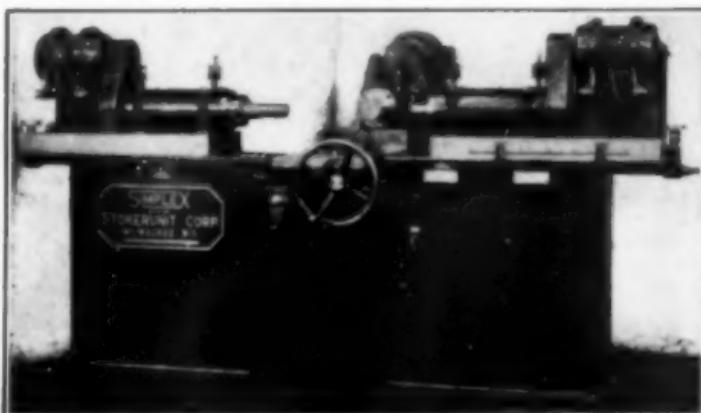
THREE RIVERS, MICHIGAN

IMPROVEMENTS IN ROCKFORD INCLINABLE PRESS

The Rockford Iron Works, Rockford, Ill., have made several important improvements in their No. 5½R inclinable open back punch press. One of these improvements is a new locking device consisting of a split plug and draw-bolt which lock the adjusting screw to the connecting rod. This replaces the old familiar saw slot which allowed the connecting rod to be squeezed on the adjusting screw.

Another improvement is an alloy steel crankshaft which has both the brake collar and the clutch collar forged in one piece. This press has a capacity of 56 tons. The fly-wheel type weighs 7,700 pounds and the single geared type 8,950 pounds.

SIMPLEX PRECISION UNIT BORING MACHINE



The Simplex Precision Unit Boring Machine manufactured by the Stoker Unit Corporation, 5325 W. Rogers St., Milwaukee, Wis., provides for precision boring of several holes on different faces of a part simultaneously. The elements of a standard type precision boring machine are merely rearranged to operate all at one time without losing accuracy or flexibility of setup.

The machine has a heavy cast bed with either two or three sets of vee and flat ways, each carrying a platen to support and guide the spindles. One or more spindles of suitable size can be mounted on each platen. A feed mechanism driven by an individual motor drives

(Continued on Page 16)

This New 1936 Model
Genuine South Bend

LATHE

No Down Payment
3 years to pay

\$75⁰⁰

Less
Motor Drive



9 1/4" x 3' Workshop Bench Lathe with Horizontal Countershaft, 1/4 h.p. reversing motor and switch, and belting as shown. *Nothing Down, 3 years to pay.* **\$98.25**

This New 1936 model 9" x 3' Workshop Bench Lathe is a back-gearied, screw cutting precision lathe, capable of handling the finest, most accurate jobs in manufacturing, in the tool room and laboratory.

Lathe may be fitted with draw-in chuck and collets, grinder, taper attachment, milling attachment and 34 other attachments for all machine shop operations.

Write for Catalog 15-R
Shows this lathe in eight different drives and four bed lengths. Tells about 30-day trial and payment terms. *Sent Free, Postpaid.*

FREE! 24 Page Book



**SOUTH BEND
LATHE WORKS**

877 E. Madison St.,
South Bend, Ind., U.S.A.

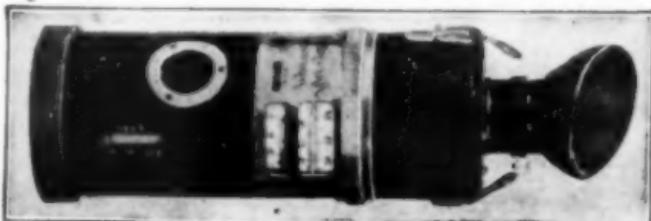
SOUTH BEND Precision **LATHES**

the feed through pickoff gears to provide changes as required. For manual cycle the platens are brought to the work by the handwheel and at the start of the cut a limit switch starts the spindles and engages the feed. A second switch stops the feed at the end of cut and platens are returned to starting position by handwheel. In the automatic cycle the electrical control operates a traverse motor which advances the platens to the feeding position and also returns them after the cut, thus establishing full automatic control. Each platen has individual adjustment in relation to the work, but normally all feed at the same rate. Spindle speeds can be arranged to suit requirements.

Specifications

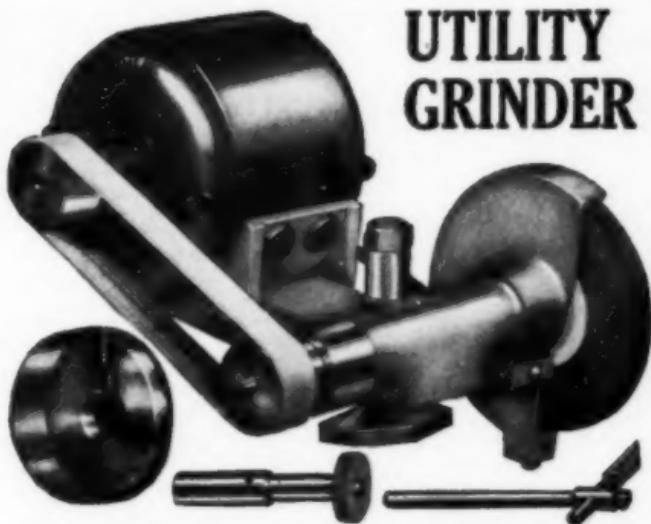
Range—feed length—maximum	12"
Diameter holes	3/8" to 8"
Number of spindles that can be used	6—#1 or 1L 3—#3
Spindle speed range	300 to 5000 R.P.M.
Spindle carrier width	13"
Space for fixture (standard)	16" square
Centerline spindle to top of table (std.)	6.250 min. 12" max.
Height from floor to table	32"
Overall length of machine	76"
Motors specified to suit job	
Net weight	4800 #
Shipping weight—domestic	5400 #
—foreign	5750 #

THE NEW PYRO OPTICAL PYROMETER



manufactured by the Pyrometer Instrument Co., 102-105 Lafayette St., New York, is a totally self-contained, rugged, dust-and-fool-proof unit for steel plants, rolling mills, foundries, laboratories and general plant uses.

(Continued on Page 18)



UTILITY GRINDER

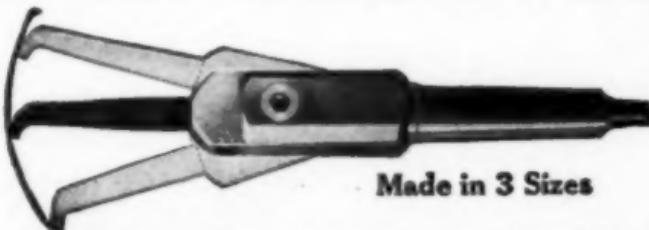
Complete as above \$65.00

EXTERNAL or INTERNAL GRINDING on a Lathe, Shaper or Planer. Make your old Tool and Cutter Grinder a self contained unit, replace the spindle head with a Utility Grinder, also can be adapted to internal Grinding Machines.

MOTOR—Constant speed, $\frac{1}{4}$ H. P., heavy duty, Ball Bearing 3500 R. P. M. No metal contact between motor and bracket. Rubber insulation absorbs motor vibration.

GRINDING SPINDLE—Alloy steel, standard precision ball bearings, spindle adjustment automatic regardless of temperature.

E-Z SET BORING TOOL



Made in 3 Sizes

\$13.50 to \$27.50 with shank and bit.

COMPACT, RIGID. Small body, large boring capacity. Adjustment actuated by a worm. Straight or taper shank. Adjustable to Jig and Fixture, Production or Maintenance work.

See your dealer or communicate direct with us.

Sold on a Money Back Guarantee

F. A. MAXWELL COMPANY
8444 Broadway, Cleveland, Ohio

Its advanced and unique features, its compactness, ease of operation, etc., enable the operator by means of the new concentrated small test mark to measure quickly and accurately the temperature of MINUTE SPOTS, FAST MOVING OBJECTS or of the SMALLEST STREAMS. It is DIRECT reading, there are no correction charts and curves, no accessories. A MASTER LAMP is furnished with each instrument, outside of two service lamps, enabling the operator to CHECK AT ANY TIME THE ACCURACY and, if necessary, recalibrate the service lamps on the spot within a few minutes' time. There is no upkeep connected with its operation; temperature readings take but 2 or 3 seconds and the instrument is furnished complete with Master Lamp, two service lamps, leather bound steel carrying case and straps. Its weight is about 3 lbs.

PYRO can be furnished with SINGLE RANGE, DOUBLE RANGE, TRIPLE RANGE or special FOUNDRY TYPE, and a copy of our NEW catalog No. 70 will be sent to anyone interested upon request.

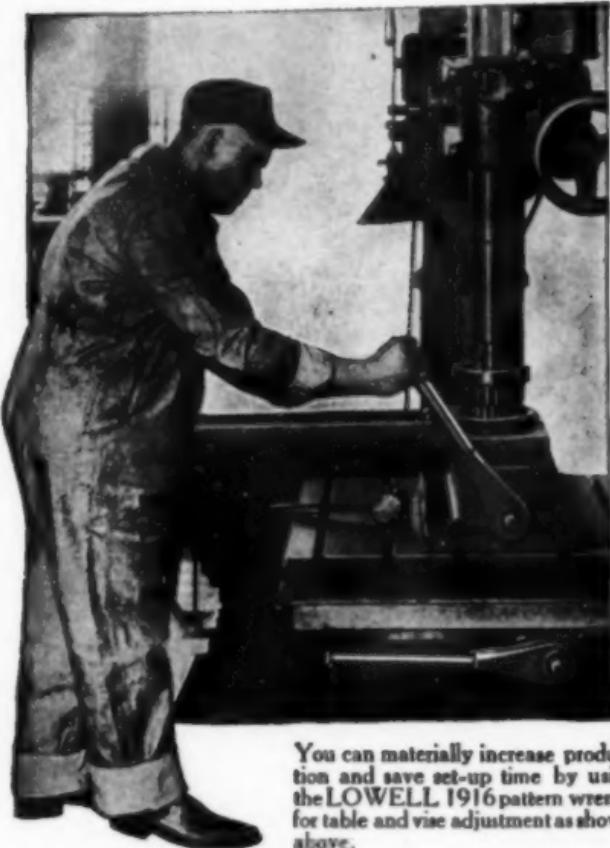
THE 1916 PATTERN LOWELL WRENCH



The Reversible Ratchet Wrench pictured herewith is manufactured by the Lowell Wrench Co., Worcester, Mass., and is known as their 1916 pattern. The big feature of this particular wrench is the locating of the reversing mechanism at the end of the handle. This is not only a time-saving feature, but a safety factor as well. A half-turn of the knurl at the end changes the action from right to left hand or vice versa.

The wrench is sturdily built of specially treated steel with crushing action upon the pawls, absolutely the strongest possible construction. It is specially adapted to working in confined quarters and on work that has to be handled in a machine vise. A great deal of time can be saved by having one of these wrenches fastened to the screw of the vise for tightening and loosening the jaws. There are no exposed parts for dirt to enter. Complete information on this wrench and others designed for heavier work may be obtained by writing directly to the Lowell Wrench Co.

(Continued on Page 20)



You can materially increase production and save set-up time by using the LOWELL 1916 pattern wrench for table and vise adjustment as shown above.

The 1916 Pattern LOWELL Reversible Ratchet WRENCH

This wrench is the only Reversible Ratchet Wrench on the market that has the reversing mechanism at the end of the handle or lever, with the crushing action on the pawls, absolutely the strongest possible construction. Easily reversible—it takes only one-half of a complete turn of the knurl at the handle end to reverse action from right to left hand. This is a great safety factor also, as there is no danger of the operator's hand coming in contact with cutters or other parts of the machine. Try our "1916's" in your shop—their actions will speak louder than our words.

*Write Today for a Copy of the
Complete LOWELL CATALOG "T"*

LOWELL WRENCH CO.
WORCESTER, MASSACHUSETTS, U. S. A.

LOWELL

WRENCHES

THE NEW PYRO SURFACE PYROMETER



The Pyrometer Instrument Co., 102-105 Lafayette Street, New York, recently placed on the market a NEW SURFACE PYROMETER line intended for all industries where SURFACE temperatures are to be measured quickly and accurately, be they flat or curved, stationary or moving surfaces.

The new instrument is self-contained, extremely rugged, quick-acting, accurate and scientifically designed for heavy duty work over a long period of years. The instrument can be furnished in type "A" for flat surfaces or in type "B" for curved surfaces. Due to the patented clamping device, contact and reading of the actual temperatures no longer have to be made simultaneously, as the indicating needle will stay fixed at the highest temperature. While contacting the thermo-couple, a red button on the indicator housing is pressed and held for a few seconds. The pressure on the button is released before removing the thermo-couple from the surface being measured, and in so doing a fixed indication of the temperature measurement is obtained. Another pressure on the red button causes the pointer on the indicator to swing back to its zero setting.

The Type "A" for flat surfaces can be furnished with scale ranges from 30 to 400° F., 30 to 600° F., 100 to 900° F. and 100 to 1400° F. The BOW type or "B" is for curved surfaces and is furnished with scale ranges: 30 to 250° F., 30 to 400° F., 30 to 600° F., 100 to 900° F. and 100 to 1000° F. Extension handles can be furnished to meet individual requirements. A new illustrated catalog, No. 60, will be sent on request.

(Continued on Page 22)



**TAP 2,000
9/36 THREADS
PER HOUR IN
STEEL WITH
ATLAS
DRILL PRESS**

**SMALL
INVESTMENT
DOUBLES
PRODUCTION**

The Reynolds Electric Company, prominent electrical product manufacturers of Chicago, find Atlas Drill Press equipment efficient and economical. Manufacturing steel switch parts, they are tapping between eighteen hundred and two thousand 9/36 threads per hour with an Atlas Model 70. The press is running full time, eight hours a day. Its purchase represented a very large saving, the price being only a fraction of other equipment considered.

ATLAS DOES 5 HOUR JOB IN 2 HRS.

On this same Atlas, Reynolds is now doing in two hours a tap job that formerly required five hours on a regular tapping outfit.

Atlas Drill Presses are standing up under this and many other similar jobs and maintaining their accuracy. They will do the same in your plant. Made in four sizes, bench and floor models. Prices range from \$14.45 to \$39.45. *See them at your jobbers or write direct for new 1936 catalog of LATHES and DRILLS.*

ATLAS PRESS COMPANY

1850 N. Pitcher St., Kalamazoo, Mich.

Complete display at Atlas Sales Co., 35 E. Wacker Dr., Chicago

MODEL "C" CHICAGO ELBOW MACHINE



The Ingels Elbo Machine Corp., 2638 Fullerton Ave., Chicago, announce a new Elbow forming machine..

This machine will make 500 elbows in an eight-hour day with two men operating. The process is very simple. The jig is slipped over the finished pipe. In one revolution of the pipe the cutting and beading of a segment is done. The segments snap together and in another revolution they are closed. It takes less than two minutes to make an elbow.

The beads in the elbow are "locked"—one inside the other. No amount of rough handling will separate them. They are easy to adjust and smoke leaks are minimized to the utmost. They are the only "locked bead" elbows made. Other elbows have the segment edges turned back to hold them together.

(Continued on Page 24)

RIGHT THROUGH ANY PIPE!



A RIDGID Pipe Cutter rolling right through any pipe. A No. 1 and 2, capacity $\frac{1}{8}$ " to 2 ".

And that's a RIDGID Vise holding the pipe—with no-mar jaws.



This is the thin super-steel wheel blade that does several times as much work as old-style cutter wheels.

IN a perfect circle, its alignment true, its powerful steel-reinforced housing holding it true, this RIDGID Cutter rolls through any pipe in a few easy turns—and leaves practically no burr.

But the secret of its unusual performance lies in its distinctive wheel blade. Coined out of sheet tool steel, hammered to shape, heat-treated and then fitted with a cast-in reinforced hub, this thin blue blade provides the cutting stamina that means far more cuts per blade—with economy and extra use-satisfaction to the user.

Try a RIDGID Cutter and you'll quickly see the difference.

●
Your Jobber has them
●

The Ridge Tool Co., Elyria, Ohio, U.S.A.

RIDGID

Pipe Wrenches

Cutters

Threaders

Vises

On every thousand 8-inch 26-gage elbows there is a saving of around 500 pounds of metal—or about enough saving in metal to pay labor costs.

This machine will make Blow-Pipe as well as Smoke-Pipe elbows. No solder is needed on the head seams.

While Model C is designed for speed, its bronze worm gears and bronze bearings give it long endurance under high production.

OIL TYPE TRIP RING FOR COLLAPSIBLE TAPS



When tapping any threads, particularly long threads of large diameters in steel, it is very essential to maintain an ample supply of lubrication to dissipate the heat and wash away the chips.

To insure a sufficient supply of lubricant for its line of collapsible taps the Landis Machine Company of Waynesboro, Pa., has placed on the market an oiling type of trip ring to replace the conventional type of ring usually employed on a collapsible tap. The accompanying illustration shows one of these rings applied to a 6" LANDIS Style LM Receding Chaser Collapsible Tap. The ring consists of a hollow housing with steel plates

(Continued on Page 26)

KRW Hydraulic and Sensitive ARBOR PRESSES

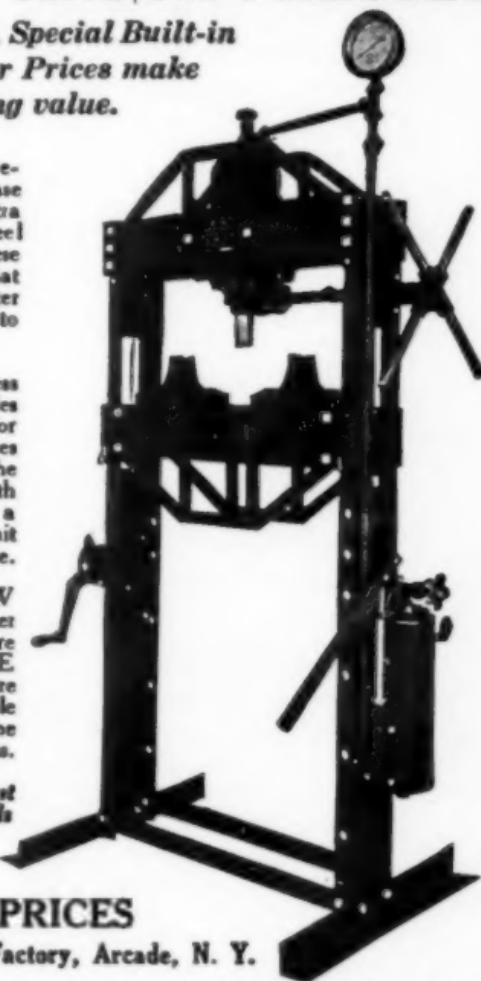
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

F. O. B. Factory, Arcade, N. Y.

No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated)	\$128.00
No. 37B—35 ton Hydraulic and Sensitive Arbor Press (air-oil operated)	128.00
No. 37E—50 ton Hydraulic and Sensitive Arbor Press (hand operated)	150.00
(Can also be furnished in air-oil operated at same price)	
No. 37F—70 ton Hydraulic and Sensitive Arbor Press (hand oper. only)	275.00
Gauge and fittings, \$15.00 extra on all presses.	

K. R. WILSON

10-18 Lock Street, Buffalo, N. Y., U. S. A.
EXPORT DEPARTMENT
90 West St., New York, N. Y.

WEST COAST BRANCH
722 Mateo St., Los Angeles

mounted on the front and the back, thus forming a reservoir for holding the lubricant. On the smaller sizes of rings the housing is made of cast iron and in order to lessen the weight the housing for the larger rings is made of aluminum. The front ring which contacts the work to effect the receding and collapsing action of the tap is made of steel and case carburized to resist wear.

Holes are placed diagonally in the housing through which a stream of oil is forcibly directed upon each chaser throughout the entire length of the cut, thus insuring ample lubrication at the point where it is needed.

A supply pipe with union connection is provided for attaching the supply hose. The housing of the trip ring remains stationary while the front and back plates will turn with the tap if the tap must revolve for tapping the thread.

These rings are available for use with LANDIS Style LM Receding Chaser and Style LT Collapsible Tap 6" size and larger.

NEW "STA-KOOL" DIAMOND HOLDER

A combination water and air cooled holder for truing diamonds has been developed by J. K. Smit & Sons, Inc., 157 Chambers St., New York City. In the truing of grinding wheels one of the principal problems to cope with is heat. The heat intensity developed in the truing process is sudden and severe and even though a stream of water is directed on the point of the diamond during the operation, it acts as a coolant only for the point and has no effect upon four-fifths of the diamond which is imbedded in the metal holder. This greatly endangers the stone as the amount of heat carried away by the metal is negligible.

The "Sta-Kool" holder is so designed that the stream of water directed on the diamond point is carried by channels into the holder immediately in back of the diamond, thus greatly prolonging its life. The series of channels are spaced at certain angles relative to the position of the diamond in the holder. This holder has the advantage in dry grinding, that cooling air circulates through these same channels as the water does in wet grinding.

(Continued on Page 28)

... For Stacking and Storage
of Boxes and Pans
USE STACKRACKS



Patents Pending

Saves Space, Time, and Labor

Store boxes and pans in an orderly manner—one on top of the other. Each stored unit is easily and quickly accessible as the top one...each stored unit can be moved, changed or replaced without disturbing any other.

The STACKRACK is ideal for use on assembly floor, in machine shop, under work bench, and for stockroom control. In fact, STACKRACKS can be used to advantage wherever you have a storage and stacking problem. STACKRACKS are made in single units. They are constructed of angle and formed steel parts, welded together. Each rack automatically locks securely in position on the rack underneath.

**STACKBIN
CORP.**



PROVIDENCE, R. I.

THE NEW ELECTRO-GRAPHIC GRAVER



—writes, marks, letters and engraves on any metal surface from softest to hardest—light, medium or heavy lines. Made by Electro-Graphic Graver Co., Factories Bldg., Toledo, O., who state it is more efficient and covers greater range of work than other known instruments of this class.

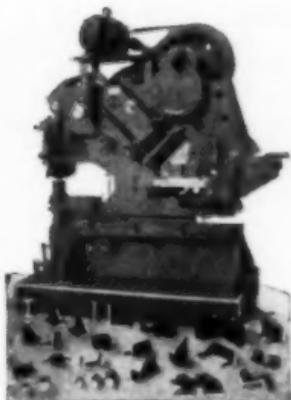
This modern Graver operates on a.c. at 110 volts and 60 cycles. Power consumption is about 75 watts. It includes a transformer with three output terminals, and a 5-point dial switch to form a combination of 15 stages of current supply from which choice can be made. Adjustment is also provided in the solenoid core mechanism. An illustrated descriptive circular will be sent you on request.

NEW STEEGE CATALOG

The W. L. Steege Machinery Co., 18 S. Clinton St., Chicago, announce that their new catalog describing their complete line of Universal Motor Drives and Gear Box Drives is now available to the trade, simply for the asking. This catalog is complete with illustrations showing the simple method which will change a cone-driven machine to a more efficient motor-driven tool.

The Steege Junior Motor Drives are adaptable to any Cone Pulley machine or tool. Made in sizes for motors from $\frac{3}{4}$ h.p. to 5 h.p.

(Continued on Page 30)



PELS

Combination
Punch, Plate Shear, Angle,
Bar and Tee Cutter

With Built-In Notcher and Coper

A complete fabricating shop in one small unit

Indispensable for structural, architectural, ornamental iron work **and**
general maintenance and repair work of industrial plants.

CUTS Plates of any length and width; Flats; Rounds and Squares; Angles and Tees square and on mitre; Perfect cuts obtained.

PUNCHES Plates and Structural Shapes in webs and flanges; Full Floating Punch Head.

COPES and **NOTCHES** angles, etc.

Guaranteed Unbreakable Steel Plate Frame

Built in Eight Sizes

HENRY PELS & CO., Inc. 90 West Street,
New York, N.Y.

OLIVER of ADRIAN Die Making Machines

—save 50 to 60% of the labor on all sawing, filing and lapping operations. Saw to the die outline from advantageous starting points, thereby eliminating unnecessary sawing.

No saws to braze or special parts to buy.

Machines available for all classes of work in materials up to 3" thick and at a price within the reach of every shop.



Send for Oliver literature today; there is no obligation.

OLIVER INSTRUMENT COMPANY
1408 Maumee St., ADRIAN, MICHIGAN

NEW NIAGARA SQUARING SHEARS

The Niagara Machine & Tool Works, Buffalo, N. Y., announce their new line of foot-operated squaring shears, to be known as "Series F" and used for cutting No. 16 gage metal.

The line has been designed to be operated with minimum effort and to provide easy accessibility as well as smooth, accurate shearing. A steel hold-down, operated manually by self-locking eccentrics, is one of the features. It exerts heavy pressure on the sheet metal, holds it securely, assuring accurate shearing. And as it does not block the view of the cutting edge it allows the operator to shear along any line.

Rigid backing for the knife is provided by a steel cross-head. On the shears for cutting lengths of 96 and 120 inches a patented parallel-screw back gage is furnished, which can be easily adjusted from either end of the machine. A graduated steel scale permits the gage to be adjusted without using a rule.

The Series F Shears are equipped with shear knives and back, front, side and bevel gages. They come in cutting lengths of from 36 to 72 inches for No. 16 gage material and foot-operated shears in 8 and 10 foot cutting lengths for No. 18 gage material.

NEW LINCOLN ELECTRODE FOR WELDING 25-12 STAINLESS STEELS

A new arc welding electrode for welding the group of stainless steels belonging to the 25-12 variety is announced by research engineers of The Lincoln Electric Company, Cleveland, Ohio. Because of its higher chrome content the new electrode is particularly advantageous for welding stainless clad steels.

This new electrode, known as "Stainweld B," provides weld metal of the same characteristics as steel containing 25 per cent chromium and 12 per cent nickel. The weld metal provided by the electrode has the high corrosion-resistance, high tensile strength and ductility possessed by the 25-12 alloy steels.

"Stainweld B" electrode is heavily coated, utilizing the shielded arc principle of producing welds free from oxides and nitrides, brittleness and porosity. The high quality of

(Continued on Page 32)

Beverly Throatless Shear

**for Straight,
Circular and
Irregular Cutting**

The special design of the Beverly makes it possible to turn the metal to **any** position, cutting **any** shape desired, without **any** distortion.

Made in two sizes—one weighs 16½ lbs. and cuts up to 14 gauge. Larger one weighs 33 lbs. and cuts up to 10 gauge.

Send for circular giving full details and low prices.

Beverly Throatless Shear Co.
3007 W. 110th Place, Chicago, Ill.



SHEAR CUT Single and Double END MILLS

THEY shear cut the metal instead of the old way of cutting. They'll cut faster, also leave that smooth finish you want. Why? It is the way they are ground.

Send for a new catalog showing other sizes and styles

**PROGRESSIVE TOOL
& CUTTER CO.**
FERNDALE, MICHIGAN

the weld metal produced is shown in results of tensile strength and accelerated corrosion tests. Tensile strength tests show that "Stainweld B" weld metal resists a stress of 95,000 lbs. per sq. in. Test coupons broke under this stress after the area of the weld metal had been reduced to make the failure come in the weld.

"Stainweld B" electrode, together with the well known Lincoln "Stainweld A" for 18-8 stainless steels, now makes it possible to arc weld practically any of the more extensively used stainless alloys. "Stainweld B" is available in $\frac{5}{32}$ and $\frac{3}{16}$ inch sizes in 11 inch lengths. It comes packed in 15 pound containers in the $\frac{5}{32}$ inch size and 10-pound containers for the $\frac{3}{16}$ inch size.

NEW GISHOLT RAM TYPE TURRET LATHES

The Gisholt Machine Co., Madison, Wis., have developed three new ram type turret lathes that are designed for high production work and small lot jobbing. They are identical in design and construction, differing only in size and capacity. They all incorporate automatic labor-saving devices that make for fast manipulation.

The bar capacity ranges from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches and the chucking capacity from 8 to 15 inches. Tapered roller bearings and hardened alloy steel gears are supplied throughout the machines, while the ways of the turret slide, saddle and bed are pieces of hardened steel, ground in place. The hexagon turret and its stop roll are automatically indexed with the back movement of the ram slide. As the ram slide goes forward to the work, the hexagon turret is automatically located and clamped in place. The operator does not need to take his hands from the pilot wheel to accomplish this cycle. A single lever movement accomplishes indexing, locating and clamping. A forward and backward movement of the lever indexes the toolpost ready for the next operation.

Selective gear transmission permits changes in spindle speed without passing through intermediate speeds and three levers control the twelve available speeds. The shift from a high to a low speed, as required in changing from drilling to reaming, or from turning to threading, is made through multiple-disk clutches without stopping the spindle. A single lever also controls shifting from forward to reverse. A very adequate oiling system is also provided.

(Continued on Page 34)

Nothing Grips Like a Diamond



SUTTON **DIAMOND** COLLETS GRIP

Are the only collets for screw machines that can give you the advantages of DIAMOND SERRATIONS

- Greater gripping power
- Elimination of slippage
- Less chucking strain
- Longer life and service

Send for Catalog No. 11-H showing full Sutton line of screw machine accessories

SUTTON TOOL CO., 2836 W. Grand Boulevard, DETROIT, MICHIGAN



ALLIGATOR TRADE MARK REG. U.S. PAT. OFFICE BELT CUTTER

You simply PUSH the knife through the belt. Makes a clean, square cut of any belt (except metal stitched) up to 8 in. wide. Combined guard and hold-down clamp holds belt immovable. Knife will make several thousand cuts and is readily replaceable. Used as illustrated or horizontally. Weight 4 lbs. and 3 ozs. net. Order through your distributor. \$10.00 in the U. S. A.

Sole Manufacturers

FLEXIBLE STEEL LACING CO.

4670 Lexington St., Chicago

In England at 135 Finsbury Pavement, London, E. C. 2

NEW TACKER HOLDS 1,000 STAPLES

A new vest-pocket size Stapler with a magazine which carries 1,000 staples in a single load and which, therefore, eliminates the inconvenience and time-waste of stopping to load after only a few staples have been applied, has been announced by the Paslode Company, 243-C North Bank Drive, Merchandise Mart, Chicago, Ill.

The small compact size of this Tacker makes it extremely convenient for use where the Tacker has to be carried around by the operator. It greatly increases the speed of attaching staples and makes its more constant use possible because of the infrequent necessity for reloading.

This Tacker has proven ideal for the great proportions of stapling uses, including the attaching of tags, labels and revenue stamps to shipments and products. Special attachments are available for shade and screen tacking, etc.

The machine is known as the Paslode Palmgren Thousand Load Tacker. The staples are furnished in a compact roll of 1,000, which are easily inserted in the Tacker magazine.

Ease of operation is another outstanding feature of this new Tacker. A light blow drives the staple securely into position. Unique features of mechanical construction eliminate the possibility of clogging. The large number of staples placed in the magazine at one loading marks one of the most revolutionary changes in Tacker design for a generation. The cost of the staples is thus reduced and since time is saved in operation and loading, the total cost of stapling is reduced materially.

NEW PRATT & WHITNEY MODEL "C" LATHE

The Pratt & Whitney Co., Hartford, Conn., announce a new model "C" Lathe which is to take the place of the Model "B" Lathe which they have manufactured for many years.

The new model is driven by a constant-speed motor, mounted on a hinged platform in the cabinet leg under the headstock. All electrical controls are located in the cabinet leg under the tailstock, except for a push-button station which is mounted on the quick change gear box and which is used for starting and stopping the motor.

(Continued on Page 36)

Motorize with Steege Drives

Equip Your Lathes, Shapers,
Millers, etc., with



Easily
Installed **\$40.00**
up

Write for Catalog

W. L. Steege Machinery Co.
20 S. Clinton St., Chicago

VISE

A good one for Driller,
Miller, Shaper, or Planer.

6", 9" and 12" Jaws

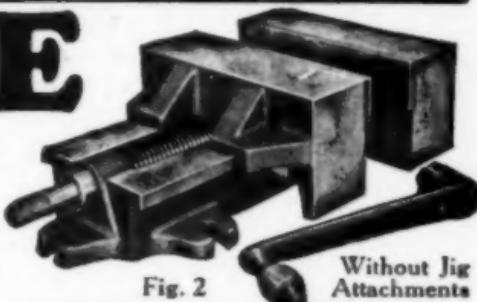


Fig. 2

Without Jig
Attachments

DRILL SPEEDER

or
H. S. Drilling
Attachment

Increases
the Speed
3 Times



Send for
Circulars
of ALL

KNURL HOLDER

for Turret Lathe

Adjustable to any size within capacity.



Swivel
Lugs

Shank
to suit Turret

THE GRAHAM MFG. CO.
70 Willard Ave., PROVIDENCE, R. I.

An unusual feature of this lathe is that the bed and headstock have been built out at the rear to provide a "column headstock" which insures solid support for the driving pulley, takes the pull of the driving belt and does away with excessive overhang. Also, a larger surface area is provided thereby for the oil reservoir, so that the oil used for lubricating the spindle bearings and gears remains cool under continuous operation.

The spindle of the lathe is unusually heavy and is supported at three points. The quick change gear box provides sixty feeds ranging from 0.002 to 0.188 inch and sixty thread changes from 1 to 60 per inch, inclusive. Two sizes are now available having nominal swings of 14 and 16 inches. Each of these sizes are available in two lengths which provide center-to-center distances of 30 and 54 inches.

NEW KUTMORE ADJUSTABLE HOLLOW MILLS

A new line of High Speed Adjustable Hollow-Mills, designed for small Automatic Screw Machines has been added to their regular line by the Kutmore Tool Company, 841 Lake Ave., Rochester, N. Y.

These mills are of very short and light construction but rigid enough to stand up under heavy strain. They come in two groups of three each, with the following cutting capacities:

The first group for the smallest machines:

No. 1-A from 0 to $\frac{1}{8}$ ", No. 1-B from $\frac{1}{16}$ " to $\frac{3}{16}$ " and No. 1-C from $\frac{1}{8}$ " to $\frac{1}{4}$ ". Shanks are $\frac{5}{8}$ " dia. $1\frac{3}{8}$ " long.

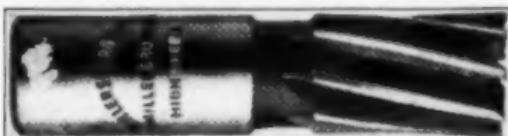
The second group for the larger machines:

No. 2-A from $\frac{1}{8}$ " to $\frac{1}{4}$ ", No. 2-B from $\frac{3}{16}$ " to $\frac{5}{16}$ " and No. 2-C from $\frac{1}{4}$ " to $\frac{3}{8}$ ". Shanks are $\frac{3}{4}$ " dia. 2" long.

Additional information will be furnished by writing direct to the manufacturer.

(Continued on Page 38)

VICTOR'S BARGAINS IN HIGH SPEED STRAIGHT SHANK END MILLS



These end mills are Standard with either right or left hand cut.

Diameter	Dimensions—Inches			Price Each
	Length of Cut	Length Overall	Net Price	
1/8	5/8	1 1/4	\$1.40	\$.56
3/16	7/8	1 1/4	1.50	.60
7/32	1/2	1 1/8	1.70	.68
1/16	9/8	1 1/8	1.80	.72
5/32	7/8	1 1/8	1.80	.72
3/8	11/16	1 1/4	1.80	.72
7/16	11/16	1 1/4	1.90	.76
1/4	3/4	1 13/16	2.10	.84
13/32	7/8	2 3/16	2.30	.92
1/2	15/16	2 1/4	2.50	1.00
67/128	1	2 7/16	2.70	1.08
7/16	1 1/8	2 1/2	3.00	1.20
7/8	1 1/4	2 5/8	3.50	1.40

Money Refunded If Not Satisfied

Send for Our General Catalogue

VICTOR MACHINERY EXCHANGE, INC.
251 Centre Street, New York, N. Y.

DORMAN TAPPING CHUCKS



3/8 Capacity	\$19.75
5/8 Capacity	\$19.75

Money Refunded If Not Satisfied

Send for Our General Catalogue

VICTOR MACHINERY EXCHANGE, INC.
251 Centre Street, New York, N. Y.

TRADE LITERATURE

"Materials Handling Equipment Parts" is the title of Catalog 417 (400 pages), issued by Jeffrey Manufacturing Co., Columbus, Ohio. Covers chains, sprockets, transmission machinery; spiral conveyor, elevator and conveyor parts, along with all other Jeffrey materials handling equipment parts. Gives specifications and list prices; presents pictorially line of materials handling equipment engineered, manufactured and erected by the Jeffrey company.

"When your temperature goes up—something's wrong"—a bulletin describing the Ideal Tel-Temp, a new type of inexpensive industrial thermometer, has recently been published by the Ideal Commutator Dresser Company, Sycamore, Illinois.

Of standard four-page letter size for easy filing, this bulletin contains much worthwhile information on a temperature determining device being marketed under the trade name, "Tel-Temp." Besides showing product illustrations, the bulletin contains many application photographs from installations in a number of different industries. These pictures show how the Tel-Temp is used to indicate temperatures on such machines as open and closed motors, generators, bus-bars, pump bearings and condensate pumps. One illustration that will be of particular interest to many shows this instrument installed on a ceiling-mounted motor so that operating temperatures can be read from the floor. The technical information discusses the advantages, from a practical standpoint, of using a temperature determining instrument such as the Tel-Temp on motors, bearings and other machinery. Copies of this bulletin can be had by writing direct to the manufacturer

The Clearing Machine Corporation, 6499 W. 65th St., Chicago, Ill., have issued a handsome booklet entitled "Clearing Cushions", illustrating and describing many new developments in power presses and power press auxiliary equipment, including air cushions, locking devices and cushioned press beds. They also have a bulletin giving details of their Duplicating Attachment, a device that can be attached to any standard milling machine and that will duplicate dies, patterns, models of all sorts, without interfering in any way with the ordinary work of the machine.

(Continued on Page 40)

RENU TOOL COMPANY

GRINDING SPECIALISTS

THE ONLY TOOL SALVAGE FIRM
AUTHORIZED BY THE FACTORY
TO SALVAGE

WELDON END MILLS

RENU INTO NEW

YOUR OLD WORN OUT MILLING
CUTTERS, SAWS, END MILLS
DRILLS AND REAMERS

6517 BRUSH ST., DETROIT, MICH.



For

Machinists and Toolmakers
Diemakers, Modelmakers and
Metal Patternmakers.

General machine shop and
tool room use on tools, dies,
jig, fixtures and machined
parts.

This "LAYOUT FLUID" has a considerable advantage over the old copper sulphate method, because the scribed lines have a pronounced contrast against the dark background—relieving eyestrain and allowing the workman to work accurately and easily to the desired layout. This compound may also be used to an advantage in layout work on brass, aluminum, stainless steel, tin, copper, etc.

With the use of the die blue layout fluid you do not have to polish the surface. Simply wipe surface fairly clean and brush on. DRIES INSTANTLY. This modern method of layout is a great time and money saver.

Four oz. Combination Brush-in-Can (for shop use) - - - 50c
One quart Sealed Handy Can (for stock room) - - - \$2.00

Dayton Rogers Manufacturing Co., 1845 E. Franklin Ave.,
Minneapolis, Minn.

TRADE LITERATURE

The Dumore Company, Racine, Wis., announce that they have secured an additional supply of the popular 24-page booklet entitled "1/10,000th of an Inch". Written by a well known authority, it is an interesting treatise on precision tolerances and contains a great deal of useful information.

They have also issued two new leaflets illustrating and describing their new "Vari-Speed" flexible shaft tool and the new No. 44 Dumore tool makers precision grinder. Copies of any or all of these publications may be obtained by writing directly to the Dumore Co.

R. G. Haskins Company, 4654 West Fulton St., Chicago, have just published a new general catalog No. 44, covering their line of flexible shaft equipment. In addition to complete specifications for the machines, this 40-page booklet also treats of the many applications of this type of equipment in the various industries, together with a large number of illustrations.

A portable electric drill, with a stainless steel drill gage built-in, is a recent addition to the line manufactured by the Stanley Electric Tools Division, 100 Elm St., New Britain, Conn.

A grinding machine that will use wheels that have been worn down on other machines is announced by the Ransom Grinding Machine Co., Oshkosh, Wis. Known as the No. 101, it is a double-end unit, operating at 3600 r.p.m.

The Buckeye Portable Tool Co., 23 West Apple St., Dayton, Ohio, have developed a new high frequency screw driver known as the Hercules No. 21-S. It is designed primarily for driving screws but can be applied for nut running by the addition of an extra nut socket.

Catalog No. 105, issued by Scully-Jones & Co., 1901 So. Rockwell St., Chicago, Ill., is ready for distribution. It lists their complete line of drilling, tapping, counter-boring, reaming and milling tools as well as a complete line of boiler tools. A graphic index and detailed line drawings giving sectional views and complete engineering data showing sizes and tolerances are also included.

No. 0 Toolmakers' Bench Shear and Rod Cutter

Backed by 20 years of continuous performance test.

The most powerful hand tool on the market.

Regular price ~~\$40.00~~

Stock sale price now \$29.50

Blades are made of high grade tool steel. Crucible steel carefully tempered bushings for cutting rods.

Equip with gauge bar with stop for cutting different length rods.

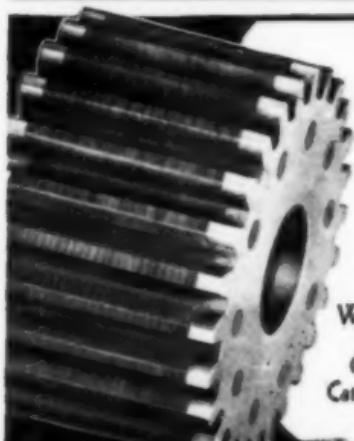
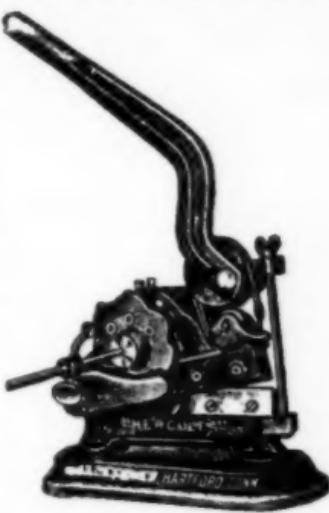
All parts are interchangeable.

Capacity: Cuts iron rods $\frac{1}{4}$ " or under, and sheets and bars $\frac{1}{16}$ ".

MADE IN SIX OTHER SIZES

Write for Catalog and Prices for entire line.

THE MELE COMPANY, East Haven, Conn., U. S. A.



Write
for
Gear
Catalog

Cushion Your Drives with Rawhide Gears

A Rawhide Gear or Pinion in any drive will absorb destructive vibration and chatter, will end gear "grinding," will silence grating. It will deliver as much power as an equivalent gear of iron or brass, will take all the wear and still out-wear metal. All sizes, all shapes, all pitches on short notice.

Chicago Rawhide Mfg. Co.

1200 Elston Avenue
Chicago, U. S. A.

Chicago Rawhide GEARS and PINIONS

NEW EQUIPMENT TABLOIDS

The manufacturers will be pleased to send full information upon request

Lukens Steel Co., Coatesville, Pa., have just issued a 24-page Bulletin, wherein they describe their Nickel-Clad Steel, and its adaptation to industry. The numerous illustrations picture many pieces of equipment from a small, plain caustic soda tank, to the largest and most intricate kettles, retorts and containers, adapted to give A-1 service in a wide variety of industries. Those interested may obtain a copy of this instructive Bulletin by addressing Lukens Steel Co.

The Norton Co., Worcester, Mass., announces a new universal tool and cutter grinding machine to be known as the No. 2. Its hydraulic table traverse enables the machine to be used to special advantage in cylindrical and internal grinding and in grinding long reamers and cutters.

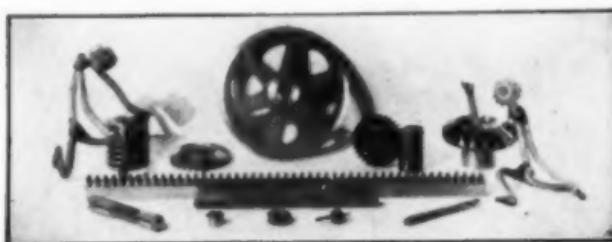
The Cincinnati Milling Machine Co., Cincinnati, Ohio, have developed a new universal milling machine, No. 2, Type L. This machine has been designed for tool room use and job shop production. It has 15 spindle speeds ranging from 23 r.p.m. to 1,200 r.p.m. and 12 feeds from $\frac{3}{4}''$ to 30" per minute.

The Greenard Arbor Press Co., Nashua, N. H., announce their new No. 60 self-contained hydraulic machine with controls for pressures from $\frac{1}{2}$ ton to 15 tons on the down stroke and from $\frac{1}{2}$ ton to 13 tons on the up stroke.

Waterbury Farrel Foundry and Machine Co., Waterbury, Conn., have developed a new power press, tooled to perform five operations successively in quantity production work where the depth of draw does not exceed $\frac{3}{8}$ ".

The Heald Machine Co., Worcester, Mass., announce their new No. 74 internal grinding machine, designed for handling a wide variety of work. Hydraulic table operation provides an unlimited number of table speeds between minimum and maximum. Grinds holes up to 20" in diameter.

SMALL GEARS



ALSO
MEDIUM SIZES IN ALL TYPES
AND MATERIALS

Massachusetts Gear & Tool Co.
36 Nashua St. Woburn Mass.

SUPREME *Super-Duty* SHEAR BLADES

Poorly finished, inaccurate shear blades waste set - up time, cause needless changing and re-grinding and are short lived. For these reasons it will pay you to specify **SUPREME** Shear Blades as *precision* plays an important part in their manufacture.

are made to order to suit your requirements—for any make of Shear. They are manufactured in Laid Alloy and High Speed Steel, as well as Solid Steel.

Let us quote you on your shear blade requirements.

Send Us Your Next Inquiry

The Saw & Knife Specialty Co., Inc.
6526 Carnegie Ave., Cleveland, Ohio

NEW! SHOP SPOTLIGHT



Shop Spotlights
Are
100%

Adjustable
For Use In All
Factories—Shops—Offices

Models for
Wall and Bench
also
Punch Press
and
Drill Press

Price F. O. B. Factory:
Single Lots \$3.25 each
Lots of Six \$2.98 each

CHICAGO DIE CASTING MFG. CO.
2502 W. Monroe St., CHICAGO, ILL.

Cut Your Finishing Costs By Using
Genesee ^{Adjust-} ^{able} **Hollow Mills**
Accurate • Long • Lived • Easily Adjusted

Made in 7 Styles



Concerns—the country over—are using **GENESEE** Production Tools to cut their costs. Let us show you how. Send us a sample of your work—or blue prints will do—and we will submit estimates that should show remarkable savings. Mail today—and ask for a copy of our free catalog.

GENESEE MFG. CO. Inc., 141 N. Water St., ROCHESTER, N. Y.



DRILLING MACHINES

SIZES

Stationary Head - 14"-16"-21"
Sliding Head - 24"-28"-32"-36"

These machines were formerly manufactured by the Rockford Machine Tool Company of Rockford, Illinois. Thousands of these machines have been installed and are giving universal satisfaction.

Also manufacturers of the Cleereman Automatically Oiled, Anti-Friction High Speed Drilling, Boring and Tapping Machines.

Builders of drilling equipment for over twenty years.

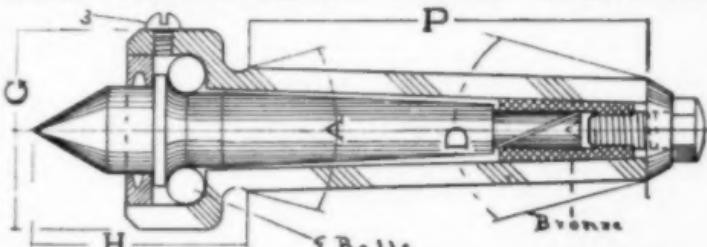
CLEEREMAN MACHINE TOOL COMPANY

Green Bay, Wisconsin

[Formerly Green Bay Barker Machine & Tool Works]

RIGID RESILIENT LIVE CENTER

D
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G
N



RIGID TRIPLE-LIFE CENTER

G
R
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A
T
G
R
I
N
D
E
R
S



IT OFFERS:

Long Life & Short Overhang

v.s

Short Life & Long Overhang

Saves $\frac{1}{3}$ on initial tool; $\frac{2}{3}$ on subsequent inserts.

Rigid Tool Holder Co., 12281 Turner Ave., Detroit, Michigan

Sheldon Arbor Presses



Sheldon Milling Machine
Vises.

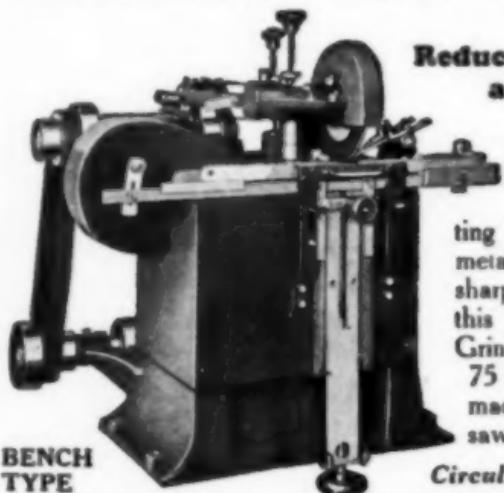
Sheldon Drill Press and
Shaper Vises.

Sheldon 90° Angle Plates.

*Write for illustrated
price list.*

Sheldon Machine Company
3255 Cottage Grove Ave., Chicago, Ill.

WARDWELL MODEL E-C
COMBINATION
Automatic Saw Sharpener



BENCH
TYPE

Shown With Hack and
Band Saw Attachments

will
Reduce Saw Purchases
and Increase Your
Cutting Speeds

Power hack saws,
metal and wood cutting
band saws, all types of
metal cutting circular saws,
sharpened automatically in
this improved Wardwell
Grinder, at a speed of 30 to
75 teeth per minute. The
machine accurately sharpens
saws as fine as 32 teeth to 1".

Circular Free Upon Request

WARDWELL MFG. CO.
3165 Fulton Rd.: Cleveland, O.

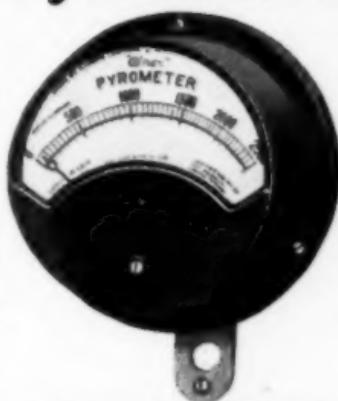
"ALNOR" Pyrometers

For every requirement

Inexpensive-accurate-durable

For over 15 years "Alnor" pyrometers have been the choice of thousands of both large and small shopseverywhere. Because of their lower price and compact size they are extensively used for indicating temperatures of molten lead, babbitt, tin and die cast metals, heat treating furnaces, for flue gas temperatures, and similar service. Also other types of portable and wall pyrometers for every requirement.

Write for Information.



\$13 to \$36 and up
depending on type
and application.

Illinois Testing Laboratories, Inc.

150 W. Austin Ave., as Chicago, Ill.
35 Year's Experience

BETTER-MADE
DIE SETS

24
DIFFERENT
STYLES

BAUMBACH



AT LOWER
COST

OVER
95,000
SIZES

STANDARDIZED

Semi-Steel

DIE SETS

Drop Forged Steel

Send For Our New 208 Page Catalog

E. A. BAUMBACH MFG. CO.
1810 South Kilbourn Ave., CHICAGO, ILLINOIS



Write for
Literature

NEW PALMGREN ANGLE VISE

—AT ANY ANGLE—
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(With Hardened and
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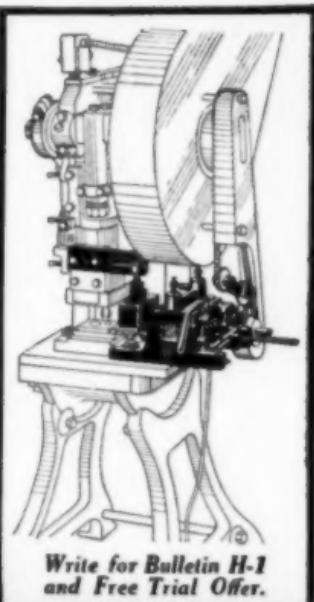
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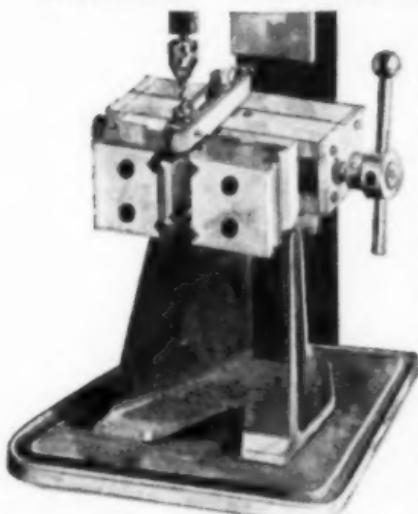


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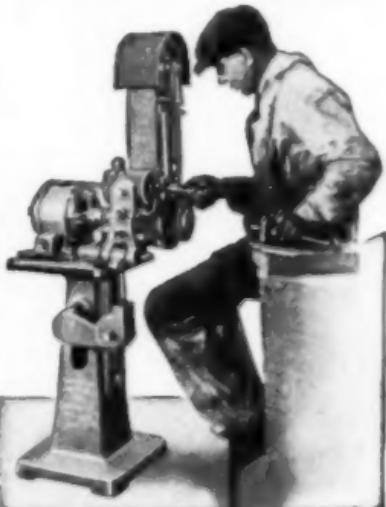
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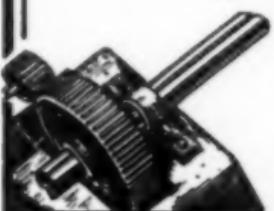
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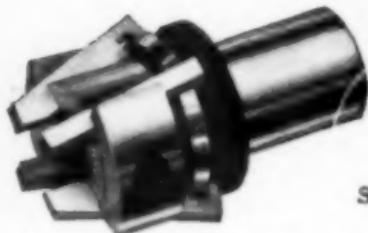
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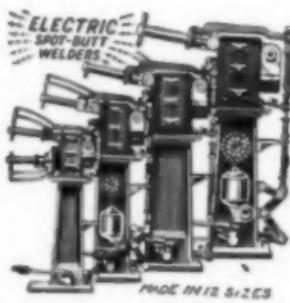
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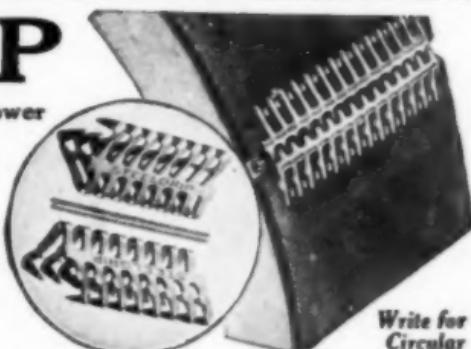
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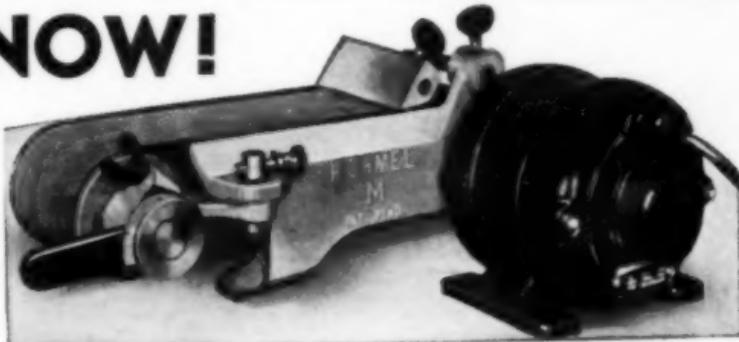
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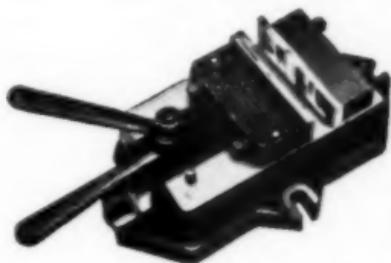
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Brakes, Hand and Power

Pels & Co., Inc., Henry, 90 West St., New York City

Dreis & Krump Mfg. Co., 7440 So. Loomis Blvd., Chicago, Ill.

Brushes, Motor and Generator

Seeger Carbon Co., 88 Park Place, New York City

Buffers, Bench

Valley Electric Corp., St. Louis, Mo.

Buffers, Pedestal

Valley Electric Corp., St. Louis, Mo.

Burs, Steel

White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Bushings, Steel

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.

Baumbach Mfg. Co., E. A., 1812 No. Kilbourne Ave., Chicago

Bushings, Jig

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.

Cabinets

Angle Steel Steel Co., Plainwell, Mich.

Centering Machines

Sundstrand Machine Tool Co., Rockford, Ill.

Cullman Wheel Co., 1359 Altgeld St., Chgo.

Centers, Lathe

Rigid Tool Holder Co., Detroit, Mich.

Chains, Silent and Roller

Chicago Gear Works, 769 W. Jackson Blvd., Chicago

Cullman Wheel Co., 1359 Altgeld St., Chgo.

Chamfering Machines, Automatic

Grant Mfg. & Mfg. Co., Bridgeport, Conn.

Chucks

Hauser Mfg. Co., 1638 No. Paulina St., Chicago, Ill.

Chucks, Automatic

Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Collet

Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Drill and Tap

Hartford Special Mfg. Co., Hartford, Conn.

Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Sampson Tool Co., Inc., 101 Walker St., New York, N. Y.

Chucks, Quick Change

Precunier Safety Chuck Co., 14 So. Clinton St., Chicago

Chucks, Ring Wheel Grinder

Graham Manufacturing Co., Providence, R. I.

Cold Saws

Burke Machine Tool Co., Conneaut, Ohio

Classified Finding Index

Collets for all Lathes and Millers
Hardinge Brothers, Inc., Elmira, N. Y.
Sutton Tool Co., Detroit, Mich.

Collets for Auto. and Hand Screw Machines
Sutton Tool Co., Detroit, Mich.

Collet Tubes
Sutton Tool Co., Detroit, Mich.

Contract Work Wanted
Burke Machine Tool Co., Connecticut, O.

Couplings, Compression Shaft
W. H. Nicholson & Co., Wilkes-Barre, Pa.

Couplings, Flexible
Delta Mfg. Co., Milwaukee, Wis.
Lovejoy Tool Works, 5025 W. Lake St., Chicago,
W. H. Nicholson & Co., Wilkes-Barre, Pa.

Couplings, Shaft
Delta Mfg. Co., Milwaukee, Wis.,
W. H. Nicholson & Co., Wilkes-Barre, Pa.

Cut-off Saws
Tannemits Works, Grand Rapids, Mich.

Cutters
Progressive Tool & Cutter Co., Ferndale,
Mich.

Cutters, Belt
Flexible Steel Lacing Co., 4670 Lexington
St., Chicago, Ill.

Demagnetizers
Luna Electric Equipment Co., Toledo, Ohio

Desks
Angle Steel Steel Co., Plainwell, Mich.

Diamonds, Industrial & Rough
Mendes Cutting Factories, Inc., 505 Fifth
Ave., New York City

Diamond Pointed Tools
Mendes Cutting Factories, Inc., 505 Fifth
Ave., New York City

Dies, Blank and Forming
American Tool Works, Inc., Hartford, Conn.
Hamilton Tool Company, Hamilton, Ohio

Die Making Machines
Oliver Instrument Co., Adrian, Mich.

Die Sets
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Dividing Heads
Wm. Carroll & Son, Norwood, Cincinnati, O.

Dowel Pins, Steel
Acme Industrial Co., 419 N. Carpenter St.,
Chicago, Ill.
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Drill Holders
Chicago Tool & Engg. Co., 8280 So. Chicago
Ave., Chicago, Ill.

Drills, Electric
SpeedWay Mfg. Co., 1822 So. 52nd Ave.,
Cicero, Ill.

Drill Jigs, Special
Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Drill Jigs, Universal
Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Drilling Attachments, High Speed
Graham Manufacturing Co., Providence, R. I.

Drilling Machines, Bench
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Cleereman Mfg. Tool Co., Green Bay, Wis.

Drilling Machines, Multiple Spindles
Foot-Burt Co., Cleveland, O.

Drilling Machines, Portable Electric
SpeedWay Mfg. Co., 1822 So. 52nd Ave.,
Cicero, Ill.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
White Dental Mfg. Co., 10 E., 40th Street,
New York, N. Y.

Drilling Machines, Sensitive
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Burke Machine Tool Co., Connecticut, O.
Foot-Burt Co., Cleveland, O.

Drilling Machines, Vertical
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Foot-Burt Co., Cleveland, O.

Drives, Lathe
Cullinan Wheel Co., 1850 Altgeld St., Chicago,
Hardinge Brothers, Inc., Elmira, N. Y.

Electric Blowers
Clementi Mfg. Co., 6650 Narragansett
Chicago

Electrical Instruments
Illinois Testing Laboratories, Inc., 156 W.
Austin Ave., Chicago

Elevating Tables
Hamilton Tool Company, Hamilton, Ohio

Emery Wheel Dressers and Cutters
Western Tool & Mfg. Co., Springfield, O.

Emery Wheel Dressers, Diamond
Mendes Cutting Factories, Inc., 505 Fifth
Ave., New York City

End Mills
Progressive Tool & Cutter Co., Ferndale,
Mich.

Etching Machines, Electric
Luna Electric Equipment Co., Toledo, Ohio

Experimental Work
American Tool Works, Inc., Hartford, Conn.

Fasteners, Belt
Flexible Steel Lacing Co., 4670 Lexington
St., Chicago, Ill.

Feeder Tubes
Sutton Tool Co., Detroit, Mich.

Classified Finding Index

Feed Fingers for Auto. Screw Mchs.
Sutton Tool Co., Detroit, Mich.

Files
Saw & Knife Specialty Co., Cleveland, Ohio

Files, Rotary
White Dental Mfg. Co., 10 E. 40th Street,
New York, N. Y.

Filing Machines
Grob Brothers, West Allis, Wis.
Oliver Instrument Co., Adrian, Mich.

Filing Room Equipment
Wardwell Manufacturing Co., Cleveland, O.

Flexible Shaft Machinery
Pratt & Whitney Co., Hartford, Conn.

Furniture, Machine Shop
Western Tool & Mfg. Co., Springfield, O.

Gages, Pin, Plug, Ring and Snap
American Tool Works, Inc., Hartford, Conn.

Gages, Taper
Hartford Special Mch. Co., Hartford, Conn.

Gears
Abart Gear & Machine Co., Cicero, Ill.
Chicago Gear Works, 700 W. Jackson Blvd.,
Chicago, Ill.
Massachusetts Gear & Tool Co., Woburn,
Mass.
Ohio Gear Co., Cleveland, Ohio
Taylor Machine Co., Cleveland, Ohio

Grinder, Electric
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.

Grinder, Flexible Shaft
Mall Tool Co., 7742 S. Chicago Ave., Chicago
N. A. Strand & Co., 5001 N. Lincoln, Chicago

Grinder, Hand
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.

Grinder, High Speed
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
Mall Tool Co., 7742 S. Chicago Ave., Chicago

Grinders, Electric Bench
Delta Mfg. Co., Milwaukee, Wis.
Valley Electric Corp., St. Louis, Mo.

Grinders, Pedestal Electric
Delta Mfg. Co., Milwaukee, Wis.
Valley Electric Corp., St. Louis, Mo.

Grinding Attachments, Drill
Carlson Mfg. Co., C. H., Minneapolis, Minn.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, Belt
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Production Machine Co., Greenfield, Mass.
Standard Electrical Tool Co., Cincinnati, O.
Walsh Sales Corp., 98 Warren St., New York

Grinding Machines, Cutter, Reamer and Tool
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, External
Maxwell & Co., F. A., Cleveland, Ohio
Chicago Tool & Engr. Co., 8380 So. Chicago
Ave., Chicago, Ill.

Grinding Machines, Internal
Maxwell & Co., F. A., Cleveland, Ohio
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Portable Electric
Chicago Tool & Engr. Co., 8380 So. Chicago
Ave., Chicago, Ill.
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
Mall Tool Co., 7742 S. Chicago Ave., Chicago
Strand Co., N. A., 5001 N. Lincoln St., Chicago
White Dental Mfg. Co., 10 E. 40th Street,
New York, N. Y.

Grinding Machines, Pulley Finishing
Graham Manufacturing Co., Providence, R. I.

Grinding Machines, Ring Wheel
Graham Manufacturing Co., Providence, R. I.

Grinding Machines, Universal
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Grinding Wheels
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.

Grinding Wheel Dressers, Diamond
Mendocino Cutting Factories, Inc., 505 Fifth
Ave., New York City

Grinding Wheels, Mounted
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.

Grinding Wheels On Shafts
Chicago Wheel & Mfg. Co., M. C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.

Hack Saw Blades
Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Hammers, Mallets and Malls
Chicago Kawahide Mfg. Co., 1200 Elston Av.,
Chicago, Ill.

Hand Screw Machines, Precision
Bench Type
Hardings Brothers, Inc., Elmira, N. Y.

Heads, Boring
Flynn Manufacturing Co., Detroit, Mich.

Hollow Adjustable Mills
Genesee Mfg. Co., Rochester, N. Y.
Kutmore Tool Co., Rochester, N. Y.

Index Centers
Wm. Carroll & Son, Norwood, Cincinnati, O.

Jigs and Fixtures
American Tool Works, Inc., Hartford, Conn.
Hartford Tool Company, Hamilton, Ohio
Hartford Special Mch. Co., Hartford, Conn.

Keyway Cutters
Threadwell Tap & Die Co., Greenfield, Mass.

Classified Finding Index

Kaurs and Holders, for Turrets
Graham Manufacturing Co., Providence, R. I.

Lacing, Belt
Flexible Steel Lacing Co., 4670 Lexington St., Chicago, Ill.

Lamp Guards
Flexible Steel Lacing Co., 4670 Lexington St., Chicago, Ill.

Lapping Compound
Timesaver Products Co., 23 So. Decatur St., Chicago

Lathe Centers
Rigid Tool Holder Co., Detroit, Mich.

Lathe Chip Pans
Angle Steel Stool Co., Plainwell, Mich.

Lathe Drives
Culman Wheel Co., 1359 Altgeld St., Chgo.
Hardinge Brothers, Inc., Elmira, N. Y.

Lathe, Bench
Atlas Press Co., Kalamazoo, Mich.
Sheldon Machine Co., 3256 Cottage Grove Ave., Chicago, Ill.
South Bend Lathe Works, South Bend, Ind.

Lathe, Back Geared
South Bend Lathe Works, South Bend, Ind.

Lathe, Brake Drum
South Bend Lathe Works, South Bend, Ind.

Lathe, Engine
South Bend Lathe Works, South Bend, Ind.

Lathe, Gap Head
South Bend Lathe Works, South Bend, Ind.

Lathe, Manufacturing
Sundstrand Machine Tool Co., Rockford, Ill.

Lathe, Precision Bench
Hardinge Brothers, Inc., Elmira, N. Y.
Wade Tool Co., Waltham, Mass.

Lathe, Precision Beach Screw Cutting
Hardinge Brothers, Inc., Elmira, N. Y.

Lathe, Screw Cutting
South Bend Lathe Works, South Bend, Ind.

Lathe, Wood Turning
Delta Mfg. Co., Milwaukee, Wis.

Layout Fluid
Dayton-Rogers Mfg. Co., Minneapolis, Minn.

Leader Pins, Steel
Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.

Leather Belting, All Types
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Leather Oil Retainers
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Leather Pkg., Hydraulic & Pneumatic
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Lubricator, Automatic
Norgren Co., C. A., Denver, Colo.

Machine Knives
Saw & Knife Specialty Co., Cleveland, Ohio

Machine Shop Lights
Chicago Die Casting Mfg. Co., 2502 West Monroe, Chicago, Ill.

Machine Tenter Stands
Angle Steel Stool Co., Plainwell, Mich.

Mandrels, Expanding
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Micrometers
Bradley Machinery Co., Detroit, Mich.

Milling Attachments
Burke Machine Tool Co., Cleveland, Ohio
Wm. Carroll & Son, Norwood, Cincinnati, O.

Milling Machines, Bench
Burke Machine Tool Co., Cleveland, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Precision Bench
Hardinge Brothers, Inc., Elmira, N. Y.

Milling Machines, Hand
Burke Machine Tool Co., Cleveland, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Plain
Burke Machine Tool Co., Cleveland, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Mills, Adjustable Hollow
Genesee Mfg. Co., Rochester, N. Y.

Motor Drives, Universal
Culman Wheel Co., 1359 Altgeld St., Chgo.
Stooge Mch. Co., 18 S. Clinton St., Chgo.

Motors, Electric Ball Bearing
Valley Electric Corp., St. Louis, Mo.

Moulds & Ladies, Hammer and Vice
Johnston Tool Co., East Providence, R. I.

Numbering Machines
Numberall Stamp & Tool Co., Staten Island, N. Y.

Packing, Hydraulic
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Pigeon Hole Sections
Angle Steel Stool Co., Plainwell, Mich.

Classified Finding Index

Pins and Lacing for Belting

Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Pins, Leader And Dowel

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.
Baumbach Mfg. Co., H. A., 1812 No. Kildare Ave., Chicago

Pipe Cutters

Ridge Tool Co., Elyria, Ohio

Pipe Vises

Ridge Tool Co., Elyria, Ohio

Pipe Wrenches

Ridge Tool Co., Elyria, Ohio

Planing Machines

Ryerson & Son, Inc., Joseph T., 16th and Rockwell Sts., Chicago

Point Thinning Machines

Oliver Instrument Co., Adrian, Mich.

Press Brakes

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
Pels & Co., Inc., Henry, 90 West St., New York City

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Sheldon Machine Co., 3256 Cottage Grove Ave., Chicago, Ill.
Wilson, R. E., Buffalo, N. Y.

Presses, Power

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
Pels & Co., Inc., Henry, 90 West St., New York City

Presses, Punch

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
Lawthwaite Mfg. Co., T. H., 811 E. 47th, N. Y.
Pels & Co., Inc., Henry, 90 West St., New York City

Production Tools

Genesee Mfg. Co., Rochester, N. Y.

Pullers, Gear and Wheel

Armstrong-Bray & Co., 315 N. Sheldon St., Chicago, Ill.

Punch Press Feeds

Wittak Mfg. Co., 4309 W. 28th Place, Chgo.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Buffalo Forge Company, Buffalo, N. Y.
Lawthwaite Mfg. Co., T. H., 811 E. 47th, N. Y.

Pels & Co., Inc., Henry, 90 West St., New York City

Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lawthwaite Mfg. Co., T. H., 811 E. 47th, N. Y.

Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago
Pyrometer Instrument Co., 102-106 Lafayette St., New York City

Pyrometers, Optical

Pyrometer Instrument Co., 102-106 Lafayette St., New York City

Pyrometers, Portable & Stationary

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago, Ill.

Pyrometers, Surface

Pyrometer Instrument Co., 102-106 Lafayette St., New York City

Racks, Cut

Massachusetts Gear & Tool Co., Woburn, Mass.

Reamer Holders

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Lawthwaite Mfg. Co., T. H., 811 E. 47th, N. Y.
Mele Company, East Haven, Conn.

Saws, Band and Circular for Metal

Saw & Knife Specialty Co., Cleveland, Ohio

Saws, Electric Hand

Delta Mfg. Co., Milwaukee, Wis.

Saw Sharpening Machines

Wardwell Manufacturing Co., Cleveland, O.

Shafts, Flexible

Strand Co., N. A., 5001 N. Lincoln St., Chgo.
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Shafts, Hangers and Boxes

Delta Mfg. Co., Milwaukee, Wis.

Shafts, Steel

Delta Mfg. Co., Milwaukee, Wis.

Shaping Machines

Osborne & Sexton Machy. Co., Columbus

Shear Blades

Saw & Knife Specialty Co., Cleveland, Ohio

Shears, Bench

Mele Company, East Haven, Conn.

Classified Finding Index

Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Beverly Throatless Shear Co., 3907 W.
110th Place, Chicago, Ill.
Lewthwaite Machine Co., T. H., 311 E. 47th
St., New York
Mele Company, East Haven, Conn.
Palo & Co., Inc., Henry, 90 West St., New
York City
Whitney Metal Tool Co., Rockford, Ill.

Shear, Power

Dreis & Krump Mfg. Co., 7440 Loomis
Bvd., Chicago, Ill.
Palo & Co., Inc., Henry, 90 West St., New
York City

Shears, Slitting

Beverly Throatless Shear Co., 3907 W.
110th Place, Chicago, Ill.
Dreis & Krump Mfg. Co., 7440 Loomis
Bvd., Chicago, Ill.

Shears, Throatless

Beverly Throatless Shear Co., 3907 W.
110th Place, Chicago, Ill.

Shear & Rod Cutter, Beach

Mele Company, East Haven, Conn.

Shop Accessories

Delta Mfg. Co., Milwaukee, Wis.

Shop Spotlights

Chicago Die Casting Mfg. Co., 2500 West
Monroe, Chicago, Ill.

Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.
Wade Tool Co., Waltham, Mass.

Speed Reducers

Abar Gear & Machine Co., Cicero, Ill.
Chicago Gear Works, 789 W. Jackson Blvd.,
Chicago
Cullman Wheel Co., 1859 Altgeld St., Chgo.
Ohio Gear Co., Cleveland, Ohio

Spools & Nuts for Auto. Screw Mch.

Sutton Tool Co., Detroit, Mich.

Spot Welding Machines, Speed.

Elster Engineering Co., Inc., Newark, N. J.
Taylor-Winfield Corp., Warren, Ohio

Sprockets

Chicago Gear Works, 789 W. Jackson Blvd.,
Chicago
Cullman Wheel Co., 1859 Altgeld St., Chgo.
Massachusetts Gear & Tool Co., Woburn,
Mass.
Ohio Gear Co., Cleveland, Ohio

Stampings

Gerding Brothers, Cincinnati, Ohio

Stools and Chairs

Angle Steel Steel Co., Plainwell, Mich.

Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

Tables

Angle Steel Steel Co., Plainwell, Mich.

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Procurer Safety Chuck Co., 14 S. Clinton
St., Chicago

Tapping Attachments

Procurer Safety Chuck Co., 14 S. Clinton
St., Chicago, Ill.

Tapping Jigs, Universal

Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Tapping Machines and Attachments

Burke Machine Tool Co., Cincinnati, Ohio
Cleereman Mch. Tool Co., Green Bay, Wis.
Procurer Safety Chuck Co., 14 S. Clinton
St., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 180 West
Austin Ave., Chicago, Ill.

Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Ridge Tool Co., Elyria, Ohio.

Tool Holders

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Rigid Toolholder Co., Detroit, Mich.
Western Tool & Mfg. Co., Springfield, O.

Tool Salvage

Renu Tool Co., Detroit, Mich.

Tools, Abrasive

White Dental Mfg. Co., 10 E. 40th Street,
New York, N. Y.

Tools, Boring

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Trucks

Angle Steel Steel Co., Plainwell, Mich.

Universal Drill Jigs

Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Chicago Gear Works, 789 W. Jackson Blvd.,
Chicago

Classified Finding Index

Used and Rebuilt Machinery

Alamo Engine Co., Hilldale, Mich.
 Amer-can Machinery Co., Cleveland, Ohio
 Atlan Equipment Co., 114 S. Clinton, Chgo.
 Belyea Co., Inc., 160 W. 18th St., New York,
 N. Y.
 Bissell Mfg. & Mech. Co., Springfield, Ill.
 Brotherhood & Son, Percy M., 114 Liberty
 St., New York, N. Y.
 Brown Machinery Co., St. Louis, Mo.
 Brownell Machinery Co., Providence, R. I.
 Cincinnati Mech. & Supply Co., Cincinnati, O.
 Cincinnati Planer Co., Cincinnati, Ohio
 Clinton Mech. Co., 35 S. Clinton St., Chgo.
 Consolidated Used Machinery Mart, 440 N.
 Oakley Blvd., Chicago, Ill.
 Craig, Jr., Thomas H., Bridgeport, Conn.
 Davis Machinery Co., Toledo, Ohio.
 Deony, W. I., 618 W. Lake St., Chicago
 Detroit Manufacturers Supply Co., Detroit
 Eastern Machinery Co., Cincinnati, O.
 Emerman, Louis E. & Co., 1781 Elston
 Ave., Chicago, Ill.
 Essley Machinery Co., E. L., 828 Keen St.,
 Chicago, Ill.
 George, James W., Detroit, Mich.
 Goldman, Harvey H., Detroit, Mich.
 Herben Machinery Equipment Co., 30 S.
 Clinton St., Chicago, Ill.
 Herberts Mech. Co., Los Angeles, Calif.
 Hill, Clarke & Co., 645 W. Washington Blvd.,
 Chicago, Ill.
 Howarth Mech. Co., C. C., Detroit, Mich.
 Ideal Machinery Co., Plainwell, Conn.
 Indianapolis Machinery & Supply Company,
 Indianapolis, Ind.
 International Machinery Co., Detroit, Mich.
 Interstate Mech. Co., 180 S. Clinton, Chgo.
 Iroquois Machinery Co., Buffalo, N. Y.
 Johnson & Sons Machinery Co., Wm. C.,
 St. Louis, Mo.
 Jones Machine Tool Co., Cincinnati, Ohio
 Kennard-Baftin Mech. Corp., 160 Liberty
 St., New York, N. Y.
 Kiamber Mech. Co., E. L., St. Louis, Mo.
 Long Machinery Corporation, Boston, Mass.
 McDonald Machinery Co., St. Louis
 McGill Machine Co., Binghamton, N. Y.
 Marr-Galbreath Mech. Co., Pittsburgh, Pa.
 Midwest Equipment Co., 828 W. Lake St.,
 Chicago, Ill.
 Miles Machinery Co., Saginaw, W. S., Mich.
 Moltor Machinery Co., Chas. L., 120-124 S.
 Clinton St., Chicago
 Morey & Co., 45 Mill St., Astoria, Long
 Island, N. Y.
 Morris Machinery Co., Newark, N. J.
 Nobie Machinery Co., 217 Centre St., New
 York, N. Y.
 Norton-Broadway Machinery Co., Cincinnati,
 Ohio
 O'Brien Machinery Co., Philadelphia
 Ohio Gear Co., The, Cleveland, O.
 Ohio Mech. & Supply Co., Cincinnati, Ohio
 Ott Machinery Sales Co., Detroit, Mich.
 Osborne & Sexton Mech. Co., Columbus, O.
 Patterson Supply Co., W. M., Cleveland, O.
 Reeve Fritts Co., 28 N. Clinton St., Chicago
 Reliance Machinery Sales Co., Pittsburgh,
 Pa.
 Reynolds & Son, Geo. T., Providence, R. I.
 Bitterbush & Co., Inc., 30 Church Street,
 New York City
 Riverside Machinery Depot, Detroit, Mich.
 Rosenkranz & Weisbecker, 2009 N. Singer
 Bldg., New York City
 Russell Machine Co., Pittsburgh, Pa.
 Scott-Bansbach Mech. Co., 4807 W. 20th St.,
 Chicago
 Scully Jones & Co., 1901 S. Beckwell St.,
 Chicago, Ill.
 Segal Machinery Co., 809 W. Lake St.,
 Chicago, Ill.
 Simmons Machine Tool Corp., Albany, N. Y.
 Steege Mech. Co., 18 S. Clinton St., Chgo.
 Stockman, John A., Honestale, Pa.
 Strong, Carlisle & Hammond Co., Cleveland.
 Sun Machinery Co., 28 Van Buren Street,
 Newark, N. J.
 Surplus Stock & Mech. Co., 1133 W. Lake
 St., Chicago
 Surplus Material & Mech. Co., Detroit, Mich.

Thompson, H. A., Fort Wayne, Ind.
 United Mech. & Supply Co., St. Louis, Mo.
 Victor Machinery Co., 125 S. Clinton Street,
 Chicago, Ill.
 Victor Machinery Exchange, 251 Center St.,
 New York City
 Waters Mech. Co., C. H., Elkhart, Ind.
 Weber, H. J., Riverside, Ill.
 West Penn Machinery Co., Pittsburgh, Pa.
 White Mech. Co., A. D., 108 N. Jefferson
 St., Chicago
 Wiener Mech. Co., Inc., 227 Centre St.,
 New York City
 Wigglesworth Mech. Co., Cambridge, Mass.
 Winkle Machinery Sales, 21st & Marshall
 Blvd., Chicago, Ill.
Valves, Foot, Lever & Solenoid
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
Vises, Drilling Machine
 Armstrong Blum Mfg. Co., 541 N. Francisco
 Av., Chicago
 Armstrong Bros. Tool Co., 306 N. Francisco
 Av., Chicago
 Graham Manufacturing Co., Providence, R. I.
 Heuser Mfg. Co., 1636 N. Paulina St.,
 Chicago, Ill.
 L-W Chuck Co., Toledo, Ohio
 Martin Tool & Die Works, J. E., Springfield, O.
 Sampson Tool Co., Inc., 101 Walker St.,
 New York, N. Y.
 Sheldon Machine Co., 3256 Cottage Grove
 Ave., Chicago, Ill.
Vises, Drill
 Johnson Tool Co., East Providence, R. I.
Vises, Machinist'
 Chicago Tool & Engr. Co., 8880 So Chicago
 Ave., Chicago, Ill.
 L-W Chuck Co., Toledo, Ohio
 Sheldon Machine Co., 3256 Cottage Grove
 Ave., Chicago, Ill.
 Western Tool & Mfg. Co., Springfield, O.
Vises, Milling Machine
 Graham Manufacturing Co., Providence, R. I.
 Hartford Special Mech. Co., Hartford, Conn.
 L-W Chuck Co., Toledo, Ohio
 Sheldon Machine Co., 3256 Cottage Grove
 Ave., Chicago, Ill.
Vises, Shaper
 Graham Manufacturing Co., Providence, R. I.
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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

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blocks, chuck.
Lathe, 24"x14" Hendey, q.c.g., tie-b.
Lathe, 12"x8" R. P., g. h., s. p. d.
Lathe, 18"x8" L. & S., q. c. g., t. a.
Lathe, 36"x16" Lodge & Shipley,
sel. hd., m. d.
Lathe, turret, No. 1 W. & S., bar
feed, m. d.
Lathe, turret, No. 4 W. & S., bar
feed, m. d. (2).
Lathe, 32"x14" Bridgeford g. h., m.d.
Lathe, 28"x20" Bridgeford, b. d.
Lathe, 20"x8" Hendey, tie bar.
Lathe, 14"x19" Fay automatic.
Miller, 18" C. Mfg., motor 3/60.
Miller, No. 4 Ohio table 101".
Pipe machine, 12" Cox., b. d.
Planer, Gray, 56x48x10', 4 heads.
Planer, 30"x30"x10' Liberty, 2-h. m. d.
Planer, 48"x48"x10' Gray, 3-hds., b. d.
Press, arbor, Nos. 1 & 3 Greenard;
30-ton Lourie hydraulic.
Press, Arch, No. 3A Mossberg dial
feed, 12 positions.
Press, D.C. No. 138A Stoll, 3" stroke.
Press, No. 35 Nia., punch type, pl.
Press, horn, 42-h. p. Toledo.
Press, No. 35 Nia., punch, type, pl.
Presses, o. b. i., 18, 19, 20 Bliss.
Punch, SK., 24" tht. 4 $\frac{1}{2}$ "x4", m. d.
Punch, SE., 36" tht. 14"x1", m. d.
Punch & s., 25x24U. Bul. univ., m. d.
Riveter, No. 5A, Hi-Speed, m. d.
Saw, No. 0 Hunter, m d sharpener.
Screw mch., Nos. 1 & 4 W. & S., belt
Shaper, 21" Smith & Mills.
Shaper, 24" Barker b. g. V-ram, b. d.
Shear, throatless, Marshalltown
rotary, cap. 4", m. d.
Steam turbines, 100 h. p. 900 rev. (2).
Transmission, No. 000 Reeves, 5:1.
Unishear, 36" throat, 14 ga., m. d.
Welder, arc, 200 amp. Linc. 3/60/220.
Welders, arc, 35 amp., transformer.
Welding & cutting generator, Carbic

Partial List. Get Our Complete Stock List.

USED AND REBUILT MACHINERY

FOR SALE BY

Ohio Machinery & Supply Co. 433 E. Pearl St., Cincinnati, Ohio
Boring mill, R. & K. horiz. 2 $\frac{1}{2}$ " bar.
Brakes, Robinson 30" and 72".
Hack saw, Racine 6x6 cap.
Lathe, 18x6 S. Boye & E. q. c.
Miller, LeBlond No. 3 plain.
Complete stock of Motors, Air compressors, Woodworking machines, etc.
Your inquiries solicited—We buy, sell or exchange.

FOR SALE BY

C. H. Waters Machinery Co.

730 East Beardsley Ave., - - -
Air Comp., 6"x6" Curtis twin cyl.
Compressor, 505 Chicago Pneumatic
2-stage, 50 h. p. motor.
Drill, No. 12 Natco.
Drill, 4' Reed Prentic radial.
Drill, 2 $\frac{1}{2}$ ' Carlton radial.
Grinder, 16"x60" Modern, self-con-
tained counter.
Grinder, cylinder, No. 55 Heald.
Grinder, drill, No. 3CA Gallmeyer &
Livingston.
Lathe, 7" P. & W., Bench collets
and chucks.
Lathe, 24"x14" LeBlond, p.c.g.; chuck
Lathe, 17"x6" LeBlond, q.c.g., chuck.

Elkhart, Ind.

Lathe, 18"x8' Prentice, q. c. g.
Lathe, 16"x10' Cincinnati, p. c. g., ck.
Miller, No. 3 Burke, bench.
Miller, No. 2 Fox, hand.
Miller, No. 2 $\frac{1}{2}$ LeBlond, plain.
Miller, No. 1 $\frac{1}{2}$ A special mig.
Milwaukee, single pulley.
Miller, No. 1 $\frac{1}{2}$ Grand Rapids, plain.
Motor, 150 h. p. General Electric
slip ring, with controls.
Planer Shaper, 24" Cincinnati.
Shaper, 24" Cincinnati, motor drive.
Shaper, 24" Gould-Eberhardt, c. d.
Shaper, 18" Cincinnati, c. d.

FOR SALE BY

Brown Machinery Co., - - -

Brake, Chicago Steel, 8' 18 gauge.
Drills, 14, 16, 20, 22, 24 & 42".
Drills, radial, 2, 3 & 4' American,
triple purpose.
Gear hobs, G. & E. 12" & 24".
Grinders, cylindrical, 10x30" Norton,
12x36" Modern, self-contained.
Grinders, disc, No. 41-20 Besly, m.
d.; No. 6-20 Besly; No. 220 Badger
automatic.
Groover, power, 6' horn.
Hammers, vertical 40 & 80-lb. Per-
fect; 75-lb. Dupont; 130-lb. Justice.
Lathes, 16"x6" & 8' Monarch q. c. g.;
16"x8' Monarch grd. head m. d.;
18"x12' American grd. hd., taper &
turret attach.; 20"x8" LeBlond,
heavy, q. c. g.; 26"x12" Putnam,
taper attach., 36"x18" Niles q. c. g.
Lathes, turret, all sizes.
Millers, plain, No. 1 $\frac{1}{2}$ American;
No. 3 Brown & Sharpe; No. 3B
Owen vert. attach.; No. 3 $\frac{1}{2}$ Fox;
No. 2B & No. 3B Milwaukee.
Millers, universal, No. 2 Hendey-
Norton; Lincoln type, No. 4
Hendey; slab, Briggs type No. 11.

2333 N. 9th St., St. Louis, Mo.

Planer, 42"x42"x10' Pond.
Presses, straight side, No. 73 Swaine;
No. 7 Zeh & Hahnemann; No. 68F
Niagara; No. 92 $\frac{1}{2}$ H Toledo; No.
408B Bliss toggle.
Presses, o. b. i. Nos. 5 & 6 Consoli-
dated comb. grd.; Nos. 1, 2, 3, 4
Loshbough-Jordan; No. 33 Swaine
Punches, sgl. end, Cleveland "C"
26" thr. $\frac{1}{2}$ in $\frac{1}{2}$ "; Rock River Style
L rapid action, 24" thr. $\frac{1}{2}$ in $\frac{1}{2}$ ";
No. 6 L. & A. 24" thr. $\frac{1}{2}$ in $\frac{1}{2}$ ";
No. 7 L. & A. 10" thr. $\frac{1}{2}$ in $\frac{1}{2}$ ".
Punch & shears, double end, No. 9C
Beloit 12" thr. $\frac{1}{2}$ in $\frac{1}{2}$ "; No. L-10
Badger 10" thr. $\frac{1}{2}$ in $\frac{1}{2}$ ".
Riveters, No. 5A High Speed $\frac{1}{2}$ " cap.;
Grant $\frac{1}{2}$ "; Allen jaw riveter.
Screw machines., No. 2 $\frac{1}{2}$ P. & W.;
1x15" P. & W.
Seamer, double, Swaine hand, 24 ga.
Shapers, 20" Columbia & Queen
City; 24" Ohio.
Shear, sq. 50" Excelsior, gap 10 ga.
Shear, rotary bevel, $\frac{1}{2}$ " Lennox.
Welders, 20k.w. Agnew; 5k.w. Dyer.
Welder, butt, Federal, 25 cy., 440 v.

USED AND REBUILT MACHINERY

FOR SALE BY

McDonald Machinery Co.,

Bolt mch., Landis & Acme 14".
Boring mill, Lucas No. 21 horizontal.
Boring mills, Barrett 5" bar horiz.
Boring mill, Niles 36" vert., 2 hds.
Boring mill, Gisholt 42" vert. m. d.
Drills, Cin-Bickford 3" & 3½" radials.
Gear cutter, G. & E. 36" s. p. d.
Gear cutter, G. & E. 60" m. d.
Gear hobber, G. & E. 24".
Grinders, B. & S. No. 2 surf. & univ.
Grinder, Norton 10x120" plain.
Grinder, B. & S. Nos. 10 & 16 plain.
Keyseaters, M. & M. Nos. 1 & 2.
Lathes, Reed-Prentice 16"x8', q. c. g.;
grd. hd.; Hendey 14"x6', q. c. g.;
50 others in stock.
Milling machines, B. & S. No. 5, vert.
Milling mch., B. & S. No. 1½ Cinc.
No. 1½, Hendey No. 1-B, Kemp.

1535 N. Broadway, St. Louis, Mo.

No. 3; Ohio No. 29; vertical slott.
attach., all universal; Kemp. No. 1,
LeBlond No. 3-H; Brown & S.
No. 3-B, s. p. d., Brown & Shape
No. 3, all plain, Cincinnati 12"
Mfg.; Milw. No. 3-B s. p. d., d. o.
Cincinnati No. 3-S pl., s. p. d.

Punch press, d. c. grd., 79" between
uprights, 5" str., wt. 38,000 lbs.

Toledo No. 56, s. s. grd., 14" str.;
Shapers, G. & E. S. & M., Cin., Ohio,
American, Steptoe, Queen City,
12", 16", 18", 20", 24" and 26"; S. &
M. 28", s. p. d.; Cin. 24" m. d. g. b.:
American 24" m. d., gear box.

Turret lathes, W. & S. No. 2A univ.
Turret lathes, Libby 18" geared
head universal, Gisholt univ.

FOR SALE BY

Belyea Company, Inc.,

D. C. MOTORS

Adj. Speed—230 Volt

H. P.	TYPE	SPD
1—1500	West.	470/ 600
1—300	Cr. Wh.	200/ 400
1—250	El. Dy.	300/ 900
3—120	G. E.	300/ 750
1—100	West.	363/ 600
3—90	Diehl	500/1100
1—60	G. E.	400/1050
2—50	West.	225/ 600
1—40	West.	300/ 900
1—35	West.	500/1500
1—35	Cr. Wh.	800/1600
1—25	West.	400/1200
3—25	West.	650/2200
1—20	West.	650/1300
2—20	West.	375/1500
20—20	G. E.	650/1950
1—20	West.	500/1500
1—20	G. E.	500/1500
2—15	El. Dy.	300/ 900
1—15	West.	600/1200
6—15	West.	400/1600
1—10/14	El. Dy.	300/1200
30—10	West.	500/1500
20—10	G. E.	600/1800

MOTOR GEN. SETS,

1000 k. w. G. E. Type MPC, 275 v.
D. C. Gen., conn. to 1440 h. p. G.
E. ati, 4600/2300 volts, 514 r. p. m.,
3 ph., 60 cy.

500 k. w. G. E., D. C. Gen. 250/275 v.
comp'd. inter pole, 720 r. p. m.,
coupled to 700 h. p. G. E. Type
ATI, Synch. Motor, 3 ph., 60 cy.,
720 r. p. m., 2200/440 v.

Above is Only Partial Listing. We Specialize in All Electrical Equipment,
Motors, Pumps, Generators.

150 W. 18th St., New York, N. Y.

300 k. w. West. 600 V., D. C. Gen.,
conn. to 433 h. p. synch. motor
4600/2300 v., 3 ph., 60 cy., 1200
r. p. m.

175 k. w. G. E., D. C. Gen. 275 v.
comp'd. interpole, dir. conn. to 290
h. p. G. E. Synch. Motor, 2300/440
v., 3 ph., 60 cy., 720 r. p. m.

A. C. MOTORS

Synch. Type

H. P.	TYPE	VOLTS	SPD
1—2850	G. E.	2300/4150	450
1—675	Al. Ch.	2200/ 550	900
1—600	G. E.	2200/ 550	257
1—269	Al. Ch.	2200/ 440	720
1—125	West.	2300	900
1—50	G. E.	440/220	1200
1—35	G. E.	440/220	1200

SLIP RING

1—1200	West.	2200	360
1—600	G. E.	2300/550	257
1—600	G. E.	2300/440	705
1—450/360	West.	2200	875/700
1—400	West.	2300	514
1—400	West.	550	505
1—300	G. E.	550	575
1—250	F. Morse	2200	1200
1—250	West.	2300/440	700
2—200	West.	220/440	900
1—200	G. E.	220/440	900
1—150	G. E.	440	1750

SQUIRREL CAGE TYPE

1—300	Cr. Wh.	2300/220	580
1—250	West.	2300/440	580
1—180	G. E.	220/440	900
1—150	West.	220/440	720
1—150	West.	220/440	580

USED AND REBUILT MACHINERY

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 Hadley Street.

St. Louis, Mo.

Air compressors, belted and motor.
Bolt threaders, 14" Landis.
Bolt threader, 2" National.
Boring mills, 36", 42", 54" & 60".
Boring mill, 36-44 Niles, side head
motor driven.
Bulldozers, No. 3, No. 4 and No. 8.
Drills, radial, 3', 4', 5' and 6'.
Grinder 12" x 66" Landis.
Grinder Hydrol hole.
Lathe, geared head 16" x 7" P. & W.
Lathe, American, 20" x 14".

Lathe, 14x6, 18x8 Monarch.
Lathe, 28x16 Bridgeford.
Lathe, 14x6 American geared head.
Lathe, Lodge & Shipley, 24" x 16".
Lathe, Gisholt, 36" motor driven.
Miller, Ingersoll slab, 27" x 23" x 14".
Miller, No. 3 Hendey universal.
Pipe machines, 4", 8", 12" & 16".
Planer, Gray 60" x 48" x 10".
Press, 92C Toledo.
Shapers, 16, 18, 20, 24 and 32".
Wheel presses, 48" & 60".

FOR SALE BY

Reeve-Fritts Company.

28 N. Clinton, St., Chicago, Ill.

Drill, 6' radial, single pulley drive	\$150.
Drill, 3-spindle Washburn b. b.	525.
Drill, 6-spindle Woodward & Rogers.	150.
Drill, Valley City 6 adjustable spindles	275.
Grinder, Wisconsin universal c. & t.	325.
Grinder, B. & S. surface 14" x 44"	350.
Lathe, Sidney 12" x 5' q. c. g., single pulley drive	300.
Planer, 24x24x6 American	425.
Press, No. 36 Bliss s. s. 5" stroke	375.
Square shear, No. 236 Niagara geared	175.
Brake, No. 3B Chicago 6' x 18 ga.	95.
Engines, 2-65 h. p. oil. (Ask for prices).	

FOR SALE BY

Ott Machinery Sales, Inc.,

546 Second Ave., Detroit, Mich.

Automatics, B. & S. Nos. 0, 2, 19; Fay 14" x 19"; Acme Nos. 52 & 54; New Britain No. 452 & 652; 14", 14" & 24" Gridley, 4 spindle.	ton, m.d.; 18" x 16' Hamilton, geared head; 36" x 18' Bridgeford g.h.; 34" x 36" Acme turret, geared head; J. & L. 3x36" & 2" x 24".
Boring mill, 5" bar Niles No. 32G. & L.	Lathes, turret, W. & S Nos. 2, 4 & 6.
Drills, Avey, Allen, Leland G. 4- spindle No. 2.	Milling mchs., Nos. 12 & 33 Kemp- smith Mfg.; Model B Becker vert.; No. 2 Cin'ti hi-power pl.; No. 4 Le Blond pl., cone; B. & S. No. 12 universal.
Drill, radial, 4' Prentiss plain.	Thread mills, No. 4 Lees-B. a.m. d.; 12" x 120" Pratt & Whitney.
Elec. h. s. furnace, Hoskins 12x5x16".	Planers, Cincinnati 26x26x6' 1-head; Cin'ti 48x36x8' 2-heads a. m. d.; Cin'ti 60x60x20' 3-heads, m. d.
Engraving machines, Keller, No. E4, E5, BG482 and BG 724.	Press brake, 12" x 10 ga. Loy & Nawr.
Gear shapers, Fellows Nos. 6, 61 & Nos. 7 & 712 high speed.	Presses, Ferracute P2, 3, 4 & 5; Fer- racute D G 53; Bliss, s. s., s. c. No. 48, 79 1/2 & 514; Toledo, No. 59 1/2; Bliss, gap, d. c., 23 A. & J. Bliss, d. c. Toggle No. 405B & 407A; B & 412; Ferracute SD 504; Lucas 75-ton horizontal.
Gear generators, Gleason 8" mg. st. bevel; Gleason 15" spiral bevel.	Slotters, Bement 68" geared.
Grinders, Brown & S. No. 10 s.p. d.; No. 2 B. & S. universal & surface; Cinti. No. 3 univ.; Norton plain, 6 x 32, 10 x 50, 14 x 50, 14" x 72"; Norton No. B-81, crank pin; 16x72 Norton, crank pin.	Upsetters, Acme 1"; Ajax 1 1/2", 2", 3", 4" & 7".
Hammers, Billings & S. 1200 lb. bd. drop; Chambersburg 1600 lb.; Erie 2500 lb. & 1500 lb.	
Lathes, 16" x 6' Flather; 16/28x10 Hamilton, cone; 16" x 6" & 9" Hamil-	

Your Inquiries Solicited—Several Thousand Tools Available.

USED AND REBUILT MACHINERY

FOR SALE BY

Chas. L. Molitor Machinery Co., 120-124 S. Clinton St., Chicago, Ill.

QUICK CHANGE GEAR LATHES

14"x6' Rockford taper draw. att.
14"x6' Monarch.
16"x6' Lodge & Shipley tap. att.
16"x6' Sundstrand tap. draw. att.
16"x6' Le Blond taper att.
16"x6' American.

16"x8' Cincinnati.
16"x8' Bradford taper att.
16"x8' Pratt & Whitney tap. att.
16"x8' Reed-Prentice grd. head.
20"x17' Oliver taper attachment.
16"x8' Reed Prentice auto. (new).

MILLING MACHINES

No. 3 Kempsmith universal.
No. 3B Becker-Brainard universal.
No. 14 Becker-Brainard universal.
No. 4 Oesterlein rapid production.

No. O. Y. B. & S. inclinable div. hd.
No. 3 Becker, No. 3 Bristol vertical.
8" Pratt & Whitney automatic (2).
Whitney, Burke, Chicago, U. S.

SCREW MACHINES

No. 4 Warner & Swasey universal.
Nos. 4 & 6 W. & S. b. g., f. h.
No. 4 W. & S. open hex. turret.
No. 3 W. & S., Fox turret lathe.
No. 1B, Foster turret lathe with
auto. chuck and bar feed.

No. 6 Brown & Sharpe screw mch.
19" Foster, geared friction head,
24" capacity.
19" Foster, grd. fr. hd. turret lathe,
power cross feed, 24" hole.
Coch grinder, W. & S., sgl. spdl.

MISCELLANEOUS

48" Cleveland openside planer.
30" Fosdick 4' American radials.
18"x8' Reed Prentice auto. lathe.
No. 216 Baker, No. 3 taper drill.
14" cup. wheel 24" disc, d. c. motor
driven Diamond grinder.
13" Brown & Sharpe gear cutters.
19" Peerless power hack saw.

Rockford 42"x8" balancing wheel.
Turner 4 spdl. vert. boring chucking
machine, model C-2.
3 spindle 24" Rockford drill.
No. 3 Wilmarth & Morman grinder.
No. 3-A Walsh gr. Arch press.
36" Toledo dbl. crank Arch press.

FOR SALE BY

The Jones Machine Tool Co.,

Front & Pike Sts., Cincinnati, Ohio

BORING MILLS

24" bar Cleveland horizontal.
36" Giddings & Lewis horizontal.
36" Bullard vertical, 3 head.
51" Niles vertical, s. p. drive.
72" Wais & King vertical, 2 heads.

GRINDERS

No. 2 Brown & Sharpe belt drive.
No. 2 Wilmarth & Morman.
No. 60 and No. 70 Heald.
No. 1 Diamond surface.
Double disc grinders—all sizes.

LATHES

12"x8' Sebastian, geared head.
18"x6' L. & S. sel. geared head.
18"x10' L. & S. sel. grd. head, (3).
20"x10' American cone head q. c.
24"x12' Lodge & Shipley, q. c.
32"x12' Boye & E., cone head q. c.
36"x16' Lodge & S., q. c., m. d.

PRESSES

50 O. B. I. presses—all sizes.
No. 4 & 5 Cons. & R. & K. (6).
No. 57 Toledo 18" bet. housing.
No. 58 Toledo, s. crank.

WELDERS

150 & 200 amp. Lincoln arc, m. d.
20 k. w. National spot.

MILLING MACHINES

No. 2 Cincinnati univ. s. p. drive.
No. 3 LeBlond univ. cone drive.
No. 3 Milwaukee plain dbl. overarm.
No. 34 Oesterlein plain cone drive.
No. 3 & 4 Kempsmith plain s. p. dr.
No. 6 Becker vertical, rotary table.

HACK SAWS

1-13x16 Peerless belt drive.
2-6x6 Racine belt drive.
2-12x15 Racine belt drive.
1-6x6 Marvel, automatic feed.

MISCELLANEOUS

Bending rolls, 8"x8" Pyramid.
Circle shear, No. 388 Toledo 8" cap.
Brake, 10' Bertsch press brake, 3/16".
Brakes, 8', Chicago power 3/16".
Bolt cutter, 14" Landis dbl. spindle.
Gear cutters, Nos. 3, 4 B. & S.
Keyseater, No. 2 Mitts & Merrill.
Press, 30 ton Lucas forcing.
Radial drills, 3' Bickford.
Radial drills, 4' Bickford, s. p. dr.
Straightening rolls, 54" H. & J.
Shaper, 32" Cincinnati, cone drive.
Square shears, 84" Kutscheid f. p.
Tapers, No. 1 & 2X Garvin.

JONES—BUYS—SELLS—TRADES—WRITE US

USED AND REBUILT MACHINERY

FOR SALE BY

J. Blesser Mfg. & Machy. Co., 16th & Madison St., Springfield, Ill.

Air comp., 6x6 Ingersoll-Rand. \$ 195.	Miller, No. 6 Transit.....	\$ 295.
Knife grinder, 79".....	Press, arch.....	195.
Lathe, 22" x 8" taper att.....	Radial drill, 7' Bement.....	395.
Lathe, 36" x 18" L. & Ship. m. d. 1895.	Shaper, 20" S. & Mill.....	195.
Miller, No. 3H LeBlond.....	Slotter, 13" Bement.....	295.

FOR SALE BY

Davis Machinery Co., St. Clair & Washington Sts., Toledo, Ohio

Drill, 3' Bickford, radial, s. p. d., t.a.
Gear hobber, No. 3 Barber-C. (2).
Grinder, No. 3 Wilmarth & M. surf.
Grinder, No. 14 P. & W. vert. surf. b.b.
Keyseater, No. 2 Davis.
Lathe, 16" x 8" Springfield, q.c.g., t.c.c.
Lathe, 18" x 8" LeBlond h. d., q. c. g.
Lathe, 18" x 10" Amer. q. c. g., comp.
Lathe, 28" x 18" Pittsburgh q.c.g., t.a.
Mill, No. 2 Kempsmith, plain.
Mill, No. 2 Cin. hi power pl., s. p. d.

Mill, No. 4 Cin. hi. power pl. c. p.
Mill, No. 1 B. & S. vertical, c. p.
Nibbler, No. 1 Campbell, 6" throat.
Press, No. 2 $\frac{1}{2}$ Consolidated, o. b. i.
Saw, No. 2 Klemm metal cutting.
Screw machines, Nos. 4 & 6 Warner
& Swasey.
Shaper, 20" 24" Steptoe crank, b. g.
Shaper, 15" Potter & Johnston, univ.
Tappers, No. 2 & 2X Garvin, vert.
Threader, 1" Landis bolt, Landis hd.

FOR SALE BY

The O'Brien Machinery Co.,

Boring mill, 42" Bullard vert. 2 hds.
Column facer, 14" Espen-Lucas.
Grinder, No. 55 Heald.
Grinder, No. 2 Van Norman Piston.
Grinder, 10" x 52" Landis, self contained, plain.
Hammer, 800 lb. Erie, steam forging.
Hammer, 1100 lb. NBP, steam forg.
Hammer, 2000 lb. Chambersburg
double frame steam.
Lathe, 30" x 10" Greaves-Klusman,
belt drive.
Lathes, 18" x 8" Bradford, mtr. dr.
Lathe, 24" x 40" x 22" McCabe, belt.

113 N. Third St., Philadelphia, Pa.

Lathe, 24" x 12" Reed-Prentice, s.p.d.
Lathe, 66" x 38" Bement, motor drive.
Miller, No. 3 K. & T., univ. table
55" x 18", range 34" x 12" x 19".
Miller, No. 4 Cincinnati universal,
belt driven, table 57" x 14".
Miller, No. 4 Cincinnati vertical,
single pulley drive.
Pipe machines, 2, 4, 6, 8 and 12"
belt and motor drive.
Punch, beam, type 1G Clev., 24" bms.
Punch, No. 3 Southward 4x4", mtr.
Shapers, 14, 16, 20 & 24" various makes
Shear, 8" Niagara, 15" gap, 3-16" cap.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Place, N. S.

Automatics, No. 52 Natl. Acme, (5).
Brake, No. 205 Chicago, 10' x 3/16",
motor 3-60-220.
Bulldozer, No. 9 Williams-White;
26" stroke, 48" die space, weight
about 70,000 lbs.
Car wheel borer, 42", hub fac. att.
Drill, 4 spdl. Colburn No. 4.
Drill & tap., No. 314 Baker, cap. 3".
Lathe, 18" x 8" L & S. pat. hd., 230 v.
Lathe, 48" x 20" Bettis-B., a. c., m. d.
Miller, No. 2 $\frac{1}{2}$ Rockford, cone.
Miller, No. 2A $\frac{1}{2}$ Milwaukee, double
over arm, single pulley.

Pittsburgh, Pa.

Miller, vert., No. 5-C Becker.
Miller and driller, No. 2 Knight.
Press, No. 24 Adriance horning,
swinging table, 2750 lbs.
Press, a.s., No. 86 Cons. grd., 6" str.
Presses, Nos. 3 $\frac{1}{2}$ & 4 Toledo, o. b. i.
Press, No. 3 Bliss dbl. cr. grd. 36"
bet. uprights, 4" shaft.
Press Perkins dbl cr., 24" bet. hsg.
Punch, L&A 1" thru 1", 24" tht.
Saw, 6" Peerless univ. shaping.
Shaper, 36" G. & E., b. g. crank.
Shears, alligator, cap. 1 $\frac{1}{2}$ & 3" sq.
Wire straightener, 3/16" Shuster, 6

USED AND REBUILT MACHINERY

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International Machinery Co., 3178 Bellevue Ave., Detroit, Mich.

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No. 1½ Rockford univ. complete.
No. 2½ Milwaukee vertical.

No. 3 Cincinnati univ. comp., cone.
No. 3 Cincinnati plain, s. p. d.

GRINDERS

Nos. 1, 2, 3 Brown & Sharpe univ.
No. 11 Brown & S. plain, s. p. d.
No. 2 Diamond surface, m. d.
84" Diamond face m. d.

14" Pratt & W. vert., b. b. spindle.
Rivett & Heald internals.
No. 70 Heald internal.

DRILLS

No. 2B Edlund three spindle, power
feed.

No. 303 Barnes all geared.
C12 Natco multiple.

Two-spindle Leland & Gifford.
One and two spindle No. 2 Colburn.

No. 30 Natco multiple, round head.

MISCELLANEOUS

Ing.-Rand air compressor, 880 cu. ft.
15" Gleason spiral finishers.
No. 2 Consolid. punch presses (3).
Nos. 4 and 6 Brown & Sharpe hand
screw machines.
No. 6 Warner & Swasey power feed
to cross slide and turret.
18x8 Hendey lathes.
No. 3A Warner & Swasey.

No. 4 Warner & Swasey universal
No. 1A Warner & S. bar & chuck (2)
8-ton General flexible press, m. d.
P-4 Farracut punch press.
No. 3 alligator shear, m. d.
3/16" Schuster wire straightener,
cut-off, m. d.
75 k. w. Federal butt welder, 440 v.
Gibbs seam welder.

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Over 30 years ago this publication began advertising the products of reliable manufacturers to the metal-working trade. It is mailed regularly each month to every worthwhile prospective buyer of machinery, equipment, supplies and services in the industry. In the 29 years it has been published, millions of dollars worth of merchandise has been purchased by its readers.

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Vertical & Horizontal Boring Mills

2 1/4" Cleveland Horizontal, S. P. D.
5" bar Detrick & Harvey floor type.
3 1/2" bar Detrick & H. floor type.
42" Gisholt, Bullard, & Niles, 2 heads on rail. All P. R. T. motor drive.
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76" Bullard, 2 heads on rail.
10' N. B. P. heavy, grd. feeds, m. dr.
36" Bullard vertical turret, motor dr.

Lathes

14" x 6' Hendey.
16" x 6' Hendey, (2).
18" x 10' American, gd. hd., motor dr.
16" x 8' American.
18" x 8' American, (3).
32" x 23' Bridgeford, grd. hd., s. p. d.
36" x 26' Bridgeford gd. hd., motor dr.
24" - 48" x 14' McCabe gap gd. hd., m.
24" - 48" x 18' McCabe gap, belt drive.
33" x 12' L. & S. heavy q. c. g., belt.
36" x 22' New Haven late q. c. g., belt.

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1 & 2 spindle Aveyomatics.
1, 2, 3, 4 spindle High Speed. Allen and Leland & Gifford.
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Snyder and Aurora, single spindle.
3" Cincinnati-Bickford plain radial.
4" Niles Universal radial.
5" Cincinnati-Bickford plain radial.
6" Amer. Tri. Purp. plain rad., m. d.
6" N. B. P. right line radial, motor dr.

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No. 3-B Milwaukee pl., late type.
No. 25 Becker Plain, (3).
No. 2 Kempnath Maximiller, m. d.
No. 3 Hendey plain, cone drive.
No. 3 Cincinnati plain Hi-Pr. gd. hd.
No. 2 Knight vert. mil. & drill., s. p. d.

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13" x 3" / 16" Geo. Ohl brake, belt.
10" x 10" ga. Loy & Nawrath, belt.
10" x 1/4" Loy & Nawrath brake, m. d.

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72" x 72" x 18" D. & H. motor drive.
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20" G. & E. High Duty gear box m. d.
24" G. & E. High Duty back gd. cone.
24" American Heavy gear box, m. d.

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84" Diamond Face, motor drive.
16" x 48" Landis crankshaft self con.
No. 65 Head cylinder, Like new.
10" x 24" Landis self contained.
14" Pratt & Whitney Vert. Surf., (2).
No. 3 Abrasive Surface, m. d.
No. 19, 53 Besly vertical disc, belt.

Presses

No. 40 Perkins o. b. i., flywheel, (2).
No. 50 Perkins o. b. i., flywheel, (4).
No. 79-B Stoll, geared.
No. 77 Bliss-Consolidated, geared.
No. 203D Toledo, s. s. d. c., flywheel.
No. 74 Bliss-Cons. gap frame flywheel.
No. 72 Cons. gap frame, geared (2).
No. 5 V. & O. open back inc. fly.
No. 8 Perkins knuckle joint embossing.

Shears

6" x 10" ga. Niagara 16" throat, m. d.
8" x 3/16" Ohl squaring, m. d.
13" x 1/4" Hyde Park, 18" throat, m. d.

Miscellaneous

No. 23 & No. 34 New Britain Auto. Chucking.
7/8" - 1 1/4" Cleveland Automatics, (2).
1 1/4" & 1 1/2" Gridley's Model F.
50" x 3" Niles Straightening Rolls.
10" x 1 1/2" Bertsch Bending Rolls.
20" x 1" Wicker Bending Rolls, m. d.
8" Jarecki Pipe Machine.
No. 13 B. & S. Standard Gear Cutter.
10 1/2" x 20" G. & E. Gear Cutter.
1 1/2" Landis Single Bolt Cutter, belt.
No. 600 DeLaval Multiple Clarifier.
48" Rverson Friction Saw.
3A Warner & Swasey Turret Lathe.

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Automatic

No. 2- $\frac{1}{2}$ " Brown & Sharpe.

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No. 2 Lambert, 4" bar.

No. 2 Coffman, 3 $\frac{1}{2}$ " bar.

No. 3 $\frac{1}{2}$ Universal, 3 $\frac{1}{2}$ " bar.

Boring Mills (Vertical)

24" Bullard, "New Era".

32" King, m. d.

36" & 42" Bullard "New Era"

61" Bullard Maxi-Mill.

62" Colburn, Heavy Duty.

72" Colburn, m. d.

72" King.

10' Niles.

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1, 2, 3, 4, 6 Spindle L.-G.

1, 2, 3, 4, 6 Sp. Henry & Wright.

4 Spindle Sigourney.

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Boley Multiple Drillers.

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No. D-4 Colburn.

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3' Western, timken bearing, m. d.

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Nos. 9-H & 18-H G. & E. hob.

No. 7 Fellows.

Nos. 6, 65, 61, 612 Fellows.

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37" Gleason bevel planer.

Grinders (Plain)

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Nos. 10, 11, 12 B. & S.

6" x32" Norton.

10" x36", 50" Norton.

10" x72" Norton.

10" x36", 52" Landis.

14" x36", 50", 72" Norton.

18" x96" Norton, m. d.

20" x120", 168" Landis, m. d.

Grinders (Univ.)

No. 2 & No. 2 $\frac{1}{2}$ Bath universal.

No. 2 Brown & Sharpe.

No. 4-12" x66" Landis.

Grinders (Misc.)

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No. 70 Heald, Internal.

No. 10 Blanchard, surf., m. d.

No. 16 Blanchard, vertical surf.

No. 5 Springfield, surface.

No. 3 Abrasive, surface.

14" x36" P. & W. surface.

15" x17" x72" Norton, o. s., surf.

36" x84" Diamond, hyd. face.

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8" Sundstrand Stub Lathe.

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13" x48" P. & W., Model "B"

16"-18" x6" L. & S. sel. g. h.

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20"-22" x8", 12" L. & S. sel. g. h.

24"-27" x12", L. & S. sel. g. h.

25" x24" LeBlond geared head.

36"-40" x14" L. & S. sel. g. h.

36" x18" L. & S. pat. head.

36" x18", 30" Rahn-Larmon.

66" x21", 36" Putnam t.g., m. d.

Millers (Plain)

Nos. 1, 2, 3-B, 4-B, 5-B, B. & S.

Nos. 1-B and 2-B Milwaukee.

Nos. 2 & 3 Cinn. h. p., s. p. d.

No. 3-B, No. 4-B Milw., s.p.d.

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18" & 24" Cincinnati automatic.

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No. 4 Cincinnati, h. p., s. p. d.

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OPENSIDE PLANERS

36" x36" x12" Liberty.

48" x48" x12" Cleveland.

48" x48" x14" Liberty.

Planers

22" x22" x5" Gray.

24" x24" x12" Gray.

30" x30" x6", 18" Cincinnati.

36" x36" x8", 18" Cincinnati.

36" x36" x10" Gray, rev. m. d.

36" x36" x24" & 48" x48" x10" Gray.

56" x56" x32" Cincinnati.

72" x72" x12" Cincinnati.

Presses

No. 4 V. & O., o. b. i.

No. 5-A Toledo, o. b. i.

No. 14 $\frac{1}{2}$ Toledo Horning.

No. 96-F Toledo, double crank.

No. 96-I Toledo, double crank.

H. & W. 50-ton dieing machine.

Shapers

16" & 20" American, s. p. d.

16" & 20" Gould & Eberhardt.

24" American, s. p. d.

24" Gould & Eberhart, s. p. d.

25" Smith & Mills.

Turret Lathes

No. 1-A Warner & Swasey.

No. 2-A Warner & Swasey.

Nos. 3A Warner & Swasey.

No. 3-B Foster.

No. 4-L Gisholt, 9 $\frac{1}{2}$ h. s.

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36" Bullard New Era type.
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No. 3 Cincinnati cone drive plain.
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28" Cincinnati semi auto. mfg. type.
3—Type A Gooley & E. mfg. type.
No. 2 Knight vert. milling and d. illing.
No. 1 Cincinnati universal cone type.
2—No. 3 Cincinnati univ. cone type.
2M Potter & J. dbl. table auto.
4" Newton double end spline.
No. 3 Cincinnati vertical.

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6" Amer. triple pur. radial motor on arm
7" Amer. tripl. pur. radial motor on base
2—4 spindle Avey No. 2 high speed.
2—2 spindle No. 2 Avey high speed.
1—No. 2 Allen 2 spindle high speed.
6" Avey single spd. No. 2 high speed.
2—No. 416 Baker heavy duty 5" sp.
No. 314 Baker heavy duty.
28" Aurora sliding head b. g.
24" Foote Burt.
2—Barnes horizontal adjustable head.
No. 1—16 spindle Baush multiple.

LATHES

36" x 15" Bradford all grd., mtr. dr.
18" x 10" Bradford quick change.
18" x 8" Hendey taper attachment.
18" x 8" Monarch quick change.
16" x 6" Hendey taper attachment.
16" x 8" Monarch quick change.

16" x 8" American quick change.

14" x 6" Hendey taper attachment.
3—12" x 5" Hendey quick change.
10 Coulter automatic threading.

GRINDERS

No. 4 B. & S. universal, belt drive.
Nos. 2 & 3B. & S. Univ., belt drive.
14" x 36" Queen City self contained.
10x36 Landis plain self contained.
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2—No. 65 Heald internal.
2—No. 70 Heald internal.
No. 2 Sellars universal tool.
2—No. 3 Wilmeth & Morman sur.
No. 6 Gardner B. B. disc. belt drive.

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No. 4 Bliss Consolidated m. d. 3" str.
No. 57½ Cons. d. b. g. trim. press 10" str.
About 20 O. B. I. all sizes.

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2—24" G. & E. b. g., cone drive.
20" G. & E. back geared, cone drive.
2—16" G. & E. back geared, cone dr.

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48" x 48" x 12" Cleve. open side, m. d.
36" x 36" x 12" Bickett double housing.
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26" x 26" x 8" Cincinnati dbl. housing.

MISCELLANEOUS

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No. 26 Williams & White bulldozer.
No. 4 Williams & White bulldozer.
No. 712 Fellows gear shaper.
No. 4B Etna swager.
No. 652 New Britain automatic chuck-
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2" Acme double spindle bolt cutters.

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FOR ALL TYPES OF
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Modern Machine Tools

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No. 3, 12 Barber-Colman Hobbers.
No. 12 Barber-C. Gr. Hob., dbl overarm
Hercules Gear Hobber, cap. 6" gears.
No. 5A Lees-Bradner Gear Generator.
No. 3, 4, 5, 13 B. & S. Gear Cutters.

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1, 2, 4, 6 spindle Allen h. s., b. b.
1, 2, 4, 6 sp. No. 2 Avey, h. s. b. b.
1, 4, 6 spindle No. 3 Avey, h. s. b. b.
2 sp. Leland & Gifford, direct m. d.
3 spindle No. 2 Demco B. B.
6 spindle 21" Hoefer Gang Drill.
No. 005, 1SS Garvin Horiz. Duplex.
No. 1, 1½ Pratt & W. 2 spindle Gun.
5 spindle Detroit Semi-Automatic.
4 spindle Foote-Burt Heavy Duty.
4 spindle 22" Barnes Camel Back.
No. 26C Fox Multiple Spindle.

MILLING

No. 5 Cin. Univ., m. d., rect. overarm.
No. 3, 4 Cincinnati Universal, s. p. d.
No. 1½, 2, 3 Brown & S. Univ., cone.
No. 2A, 2A Heavy B. & S. Univ. m. d.
No. 3 Kempsmith Universal, cone.
No. 2, 3, 4 Cincinnati Vertical, s. p. d.
No. 2M Cincinnati Vert., motor in
base, Timken Bearings, latest.
No. 3A B. & S. Univ., motor in base.
No. 4 Kempsmith Vert. Maxi-Miller.
No. 3 Rockford Rigidmill, m. d.
No. 21 Brown & S. Auto., s. p. d.
No. 33 Kempsmith Production.

48" Cincinnati Plain Auto., worm dr.

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14"x6" Lodge & S. Selec. 12 speed.
14"x8" Reed-Prentice.
16"x6" Lodge & S. Selective, taper.
18"x6" American, 12 speed, auto oiled.
18"x8" American, 12 speed, auto oiled.
18"x8" Lodge & S. Selec., 12 speed.
20"x8" American, 8 speed.
20"x10" American, 8 speed.
20"x6" Hendey.

ENGINE LATHE-CONE HEAD

14"x6" Lodge & Shipley, bowl head.
16"x6" Hendey, yoke head, taper.
16"x6" Lodge & Shipley.
18"x8" American, bowl head.
18"x8" Greaves-Kluaman.
18"x8" Hendey, yoke head.
18"x8" Lodge & Shipley, bowl head.
18"x8" Lehman.
18"x10" Hendey.

No. 6, 61, 612, Fellows Shapers.
No. 7, 75, Fellows H. S. Gear Shapers.
No. 18H, 18HW Gould & Eberhardt
Gear Hobbers.
6", 11", 18" Gleason Gear Generators.

MACHINES

No. 216, 220 Baker 2 spindle.
3" Carlton Sensitive Radial.
3½" Cin. Bickford Plain Radial.
4" Dreses Plain Radial, gear box.
4", 6", 3½" American Triple Purpose
Plain Radial Drills, gear box.
20", 21", 24", 28", 36" Cincinnati
Bickford Upright.
D2, D3, D4 Colburn H. D.
No. 2, 4, 22 Colburn Mfg.
No. 121, 217, 310, 314, 315 Baker HD
20, 22, 24, 32, 40" Aurora Upright.

GEARED HEAD

24"x8" American, Medium Pattern,
12 speed, taper.
24"x10" American, Medium Pattern,
12 speed, taper.
22"x14" Lodge & S. Selec. Head.
30"x12" American, 12 spd., auto oiled.
30"x22" Lodge & Shipley Selective
Head, taper, 12 speed.
32" raised to 41"x28" Bridgeford, taper

GEARED HEAD

19"x10" LeBlond.
20"x8" American, taper.
21"x10" LeBlond, taper.
22"x8" Lodge & Shipley, bowl head.
27"x12" American, bowl head.
28-56"x12" Putnam Gap.
30"x14" Lodge & Shipley.
36"x11" American.
36"x18" American, taper.

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Machinery At Attractive Prices

Boring Mills, No. 3-A Universal, horizontal, motor drive, (2).

Multiple Drill, No. 14 Natco.

Grinder, No. 2 Gardner automatic piston ring.

Grinders, No. 14 Gardner disc, arranged for motor drive.

Rotary Grinder, 12" Head.

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20 ton General Flexible Power Press.

300 Tools in Stock—Send Us Your Inquiries

C. C. Howarth Machinery Co.

1440 Franklin St.,

Detroit, Michigan

MILLERS

No. 2 Cincinnati H. P. Rectangular Overarm Plain, motor drive, motor located inside base of machine, power rapid traverse.

No. 3 Cincinnati H. P. Rectangular Overarm Plain, m. d. pr. rapid tr.

No. 4 Cincinnati H. P. Plain, slotted nose, S. P. D. power rapid traverse.

No. 1 Kempsmith Plain.

No. 2 Kempsmith Plain (2).

AUTOMATIC SCREW MACHINES

No. 6 B. & S. Full Automatic (3).

No. 2G B. & S. serial 6267, M. D. with motor drive slotter, like new.

No. 0 B. & S. serials 5702 to 6564 (3).

2½" Gridley 4 sp. Model "F", M. D.

2½" Gridley 4 sp. Model "F", M. D.

TURRET LATHES

No. 4 Giaholt Universal, Geared Head, Bought new 1928 (3).

GRINDERS

No. 2 Cincinnati Centerless, serial H-2026-V, m. d. Purchased new 1929.

No. 10 B. & S. Self Cont., S. P. D.

No. 11 B. & S. Self Cont., S. P. D. (4).

No. 1 B. & S. Universal (2).

No. 4A Landis Universal Crankshaft, serial 20, 410.

No. 55 Heald Internal Cylinder.

GEAR HOBBERS

No. 2 Barber-Colman (2).

No. 3 Barber-Colman, serial 881, Motor Driven.

No. 3 Barber-Colman, power down feed to head.

No. 12 Barber-Colman Double Overarm, serial 2506, power rapid traverse to carriage.

POWER PRESSES

Brand New No. CG14 Ferracute, Incl.

Brand New No. CG15 Ferracute, Incl.

Brand New No. DDG4 Ferracute, Incl.

Like New No. CG15 Ferracute, Incl. with roll feeds.

MISCELLANEOUS

No. 242 Barnes Self Oiling All Geared Drill Presses, motor drive with motors inside of column (2).

Hill Curtis Buffing & Polishing Lathes, 7½ H. P. with motor located inside of base, Texrope Drive (14).

Landis 1½" Bolt Threaders.

No. 5 Jackson Die Sinker, cherry, attachment with quantity cherry tools.

Natco 12 Spindle Straight in Line Drill Press.

No. 000 Hilles & Jones Plate Straightener, 8 rolls, 40" x 4½".

Shatz Punch & Shear, cap. punch 20mm thick x 30mm.

All machines located on our floor

Noble Machinery Co., Inc. 217 Centre Street,
New York City, N. Y.

High Grade Machine Tools

Lathes

42" x 30" American Grd. Hd., S. P. D.
42" x 30" Putnam Grd. Hd., S. P. D.
26" x 48" x 22" McCabe, Dbl. Spindle.
36" x 18" Amer. Grd Hd. S.P.D. 2 car.
24" x 16" American Grd. Hd. S. P. D.
18" x 6" Lodge & S. Grd. Hd. S. P. D.
18" x 10" Lodge & S. S. P. D. Grd. Hd.
24" x 10" Bradford Geared Head Taper,
Arranged Motor Drive.
28" x 48" x 10" Harrington, Slid. Bed.
30" x 18" American Cone High Duty.
20" x 10" American Grd. Hd. S. P. D.
36" x 16" Lodge & S. Sel. Grd. Hd.
20" x 8" Am. Grd. Hd., M. D., late.
20" x 8" Hendey Tool Room, cone dr.

Grinders

18" x 96" Norton Grinder.
16" x 48" Landis Crankshaft.
16" x 48" & 72" Landis Crankshaft.
10" x 30 Queen City, Self Contained.
Type A Production Abrasive Finishing
Nos. 50, 55, 60, 65 and 70 Heads.
6" x 18" Landis Plain, Self Contained.
10" x 52" Landis Plain, Self Con.
Rivett Internal Grinder.

Gear Cutters

No. 1 Brown & Sharpe Gear Tester.
No. 615 Fellows.
36BM Gould & E. Gear Rougher.
No. 3, 26" Brown & S. Gear Cutter.
No. 4, 48" Brown & Sharpe.
No. 5-40" Newark Hobber.
Nos. 1, 2, 4 Adams Farwell Gear Hb.
18-H Gould & Eberhardt Hobber.
6", 11", 18" Gleason Gear Generators.

Bolt and Pipe Threaders

2" Acme Bolt Cutter.
2 1/2" Bolt Landis, Lead Screw, Cone.
6" Landis Pipe Machine, M. D.
1 1/2" Landis Sgl.-Sp., Grd. Hd. m. d.
2" Landis Double-Spindle.

Boring Mills

36"-.44" Niles-Bement-Pond Side hd.
Mill, Rapid Traverse.
42" Niles Boring Mills, 2 heads.
14" Betts, Cone Drive.
60" Niles Boring Mill, 2 heads.

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**Cincinnati Machinery & Supply Co., 28 West Second St.,
CINCINNATI, OHIO**

Milling Machines

No. 2 & 3 Kempsmith Plain, M. D.
No. 24 Brown & Sharpe.
No. 3 LeBlond H. D. Plain.
No. 3 Kempsmith Universal.
No. 3 Ryerson S. P. D., Universal.
No. 2 Rockford Universal, complete.
No. 4 Cincinnati H. P. Pl., S. P. D.
No. 4 Cincinnati High Power Rect.
O. A., Plain.
No. 3-B Milwaukee Pl., Dbl. O. A.
5B Becker Vertical Mill.
No. 4 Cincinnati Vertical High Power
Single Spindle Drive.
5" Pratt & Whitney Automatic.
18" Cincinnati Plain Mfg. Miller.
Briggs Manufacturing Miller.
No. 7-H Becker Lincoln type.
No. 1 Knight Miller and Driller.
No. 3 & 3-E Lees-B. Thread Millers.

Planers

30" x 36" x 10" Cincinnati.
42" x 42" x 8" Liberty Openside, two
heads, force feed lubrication, motor
driven, late type.
42" x 42" x 10" Cleveland Openside,
3 heads, A. C., M. D.
26" x 26" x 8" Cleveland Openside.

Radial and Upright Drills

24" Cincinnati Pickford Upright, tap.
2 1/2, 3, 3 1/2, 6" Cinci.-Bick. S. P. D.
3, 3 1/2, 4 American Trip Pur. S.P.D.
3" Bickford Plain, S. P. D.
No. 2 Colburn Mfg. H. D. 2-spindle.
No. 40 Natoec Straight Line Multi.

Shapers

28" Gould & Eberhardt High Duty.
16", 20", 24" G. & E., str. dr. thru g. b.
16", 20" and 24" G. & E., cone drive.

Miscellaneous

No. 3-B LaPointe Broaching McHe.
80lb Bradley Cushion Helve Hammer.
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16" x 6" Sundstrand, q. c. g. belted m. d.
14" x 6" Bradford, t. a., draw-in-att.
14" x 6" Hendey, q. c. g.

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32" Gould & Eberhardt, b. g., s. p. d.
28" Rockford, back geared.
24" American, back geared.
20" & 24" Gould & Eber., bck. gd.
14" Smith & Mills.
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14" x 6" Cisco, S. P. D.
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22" x 10" Davis.
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14" x 6" Bradford, t. a., draw-in-att.
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20" & 24" Gould & Eber., bek. grd.
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No. 2 universal Brown & Sharpe.
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8", No. 20 Heald surface.
14" Oliver twist drill.
No. 2 Cincinnati centerless.
16" x 68" No. 4A Landis crank.
10" x 36" Norton camshaft.
Pratt & Whitney worm.
30" x 84" Diamond face.
No. 70 Heald internal.
No. 50 Heald cylinder.
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52" Bealy horizontal disc.
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14" x 6" Cisco, S. P. D.
14" x 6" American, M. D.
16" x 8" American.
16" x 6" Cisco, S. P. D.
16x8" Lodge & Shipley.
16" x 8" American, M. D.
18" x 8" Schumacher Boye.
18" x 8" Lodge & Shipley, S. P. D.
20" x 8" American, S. P. D.
22" x 10" Davis.
24" x 14" Reed Prentice, M. D.
27" x 12" Schumacher Boye.

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Nos. 2, 2M, 3 & 4 Cincinnati.
Nos. 1 1/2, 2B, & 3B B. & S.
No. 1 1/2 HS & 2 Milwaukee.
No. 3 Cincinnati universal.
Nos. 4B & 6 Becker vertical.
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Grinder, O. S. Walker surface.
Grinder, No. 2 B. & S. cutter.
Hammer, 100 lb. Little Giant, trip.
Lathes, 12"x5' Hendey, q. c. g., t. a.
Lathe, 12"x6' Hendey, q. c. g., t. a.
Lathe, No. 3 P. & W. bench.
Lathe, 15"x6' P. & W. engine.
Lathe, 18"x8' Walcott q. c. g., t. a.
Lathes, No. 0 B. & O. turret; collets.
Lathe, 20"x12' Brad. q. c. g., t. a.
Lathe, 9"x4' Champion, bench.
Lathe, 11"x5' South Bend, q. c. g.
Miller, No. 0 B. & S. plain, rack feed.
Millers, No. 1 Kempamith univ., equip.
Millers, No. I.U., No. 6 Whi y hd.
Millers, No. 2 Cin. pl., vert. & spiral
att., No. 3 B. & S. pl., arr. m. d.

Miller, No. Rock'd univ., s. p. d.
Miller, No. 2 Rock'd plain, s. p. d.
Millet, No. 2 Garvin duplex.
Miller, No. 1½ Brown & Sharpe, univ.
Planer, 24"x24"x6' Gray, 1 head.
Planer, 30"x30"x6' Gray, 1 head.
Planer, 30"x30"x6' Pond, 1 head.
Press, No. 73W Bliss.
Press, No. 20 Bliss, o. b. i. 2" stroke.
Saw, 6"x6" H. & R. band.
Stereoscopes, Model "C" Shore.
Screw mch., No. 1 B. & S. wire feed.
Screw mch., No. 2 P. & W. hand.
Screw mchs., No. 00 B. & S. auto.
Screw mch., No. 0 B. & S. auto.
Shaper, 16" Cincinnati b. g., rev. table.
Shaper, 16" Smith & Mills, b. g.
Shaper, 17" Averbeck, b. g., crank.
Shaper, 16" Gould & Eberhardt, b. g.
Shaper, 7" Rhodes, crank.
Shaper, 15" Hendey friction.
Shaper, 24" American, b. g.
Tapper, No. 2 Garvin automatic.
Tester, No. 2½H Rockwell hardness.

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5 GRINDERS. Bealy, Norton.
18 LATHES. Lodge & Shipley, Reed Prentice.
LeBlond.
23 LATHES—Turret. Bardons & Oliver, Foster, Libby, Warner &
Swasey, Gisholt, Jones & Lamson.
4 MILLERS. DeVlieg, Whitney, LeBlond.
7 TAPPERS & THREADERS. Garvin, National Acme.

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72" Colburn.	12"-8"-6" Bullard Mult-Au-Matics.
72" Niles-Bement-Pond.	42"-36"-24" Bullard New Era
62" Niles-Bement-Pond.	Type Vertical Turret Lathes.
60" Colburn.	Nos. 1 & 2 Barret Horizontal Cylinder Borers.
48" Colburn.	

MILLING MACHINES

No. 5 Cincinnati Rect. Overarm.	No. 4 Cincinnati Universal, S.P.D.
Nos. 5, 4, 3, 2 Cincinnati, Plain.	No. 2 Cincinnati Universal, cone.
Nos. 4, 3 & 2 Cincinnati Vertical.	

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42"x24" Niles-Bement-Pond.	24"x27" Reed.
36"x32" LeBlond, with 2 carriages.	26"x24" Putnam.

MISCELLANEOUS

6' American Triple Geared Plain Radial Drill, Single Pulley Drive.	
2 1/2' American triple geared, Plain Radial Drill, single pulley drive.	
16" Southwark Plate Planer, 1 1/4" capacity, motor drive.	
No. 13 Brown & Sharpe Universal and Tool Grinder.	
No. 65 Heald Cylinder Grinders.	
12" Heald Rotary Grinder and 16" Persons-Arter Rotary Grinder.	
No. 16 Blanchard Vertical Grinder.	
2 1/2" to 8" Saunders Pipe Machine.	
Nos. 4 & 14 Colburn Heavy Duty Drill Presses.	

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1 1/2" cap. Smurr & Kamen.	Acme, like new.

SHAPERS

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No. 1 1/2 American plain.	24"x20"x8" Ingersoll.
No. 2 Brown & Sharpe, heavy.	No. 5 Becker vertical.

MISCELLANEOUS

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Gear miller, No. 1 Bilton.	Sand Blast, Boland.
Planers, Gray, 36" and 42".	Shear, Loy & Nawrath 3 1/2" cap. 10'.

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MACHINERY COMPANY
COLUMBUS OHIO**

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American 6" Plain Radial Drill, single pulley gear box drive	1,250.
Bausch 7" Plain Radial Drill, t. and l. pulley drive	460.
Becker No. 6 Model C Vertical Miller, with motor	850.
Walcott Jackson No. 6 Die Sinker, m. d., with motor and Wise 4-speed transmission	850.
Whipp 26" openside Shaper Planer, with motor	795.
Norton 16x72 type A Plain Grinder, belt drive	1,250.
Gisholt Model C Univ. Balancing Mch., 44" length, with motor	950.
Betts 0° to 8° Vertical Slotter, with 30° rotary table	495.
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Wagner 35 HP. 1140 RPM, 220/440 volt, 3 phase, 60 cycle mtr.	135.
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No. 4 Cincinnati Universal Milling Machine, High Power Cone Drive. Full equipment including vertical head.
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No. 2 A Brown & Sharpe Universal Milling Machine, Motor Drive.
No. 13 Brown & Sharpe Universal Tool Room Grinder, Belt Drive.
36" x 8" Ingersoll Planer Type Vertical Spdl. Milling Machine, Motor Dr.
No. 2 Brown & Sharpe Universal Cylindrical Grinder, Belt Drive.
No. 2 Norton Universal Cutter and Reamer Grinder, Belt Drive.

Several No. 2 Brown & Sharpe Surface Grinders, Belt Drive.
Allen High Speed Sensitive Drills, Two, Three, Four and Six Spindles.
16" Cincinnati Gear Hobber, Single Pulley Drive.
42" King Vertical Boring Mill, Two heads on cross-rail. Elect current motor drive.
60" x 48" x 12" Niles Bement Pond Planer, two heads on cross-rail, one side head. Belt or motor drive.
48" x 18" Lodge & Shipley Screw Cutting Lathe, Cone pulley geared face plate drive.
24" x 48" x 12" McCabe Screw Cutting Lathe, cone driven.
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2000 lb. B. & S. Bd. Drop Hammer.
1500 lb. Ene. Board Drop Hammer.
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10" Ohi. Squar. Shear 10 ga., b. m. d.
No. 00 Baker Keyseater.
No. 3 H&J dbl. angle Sh., cap. 6x6x1".
H & J.S.E. Punch 52" Th., cap. 1 1/2" x 1".
12" Cox Pipe Cutting & Thread. mach.
Lennox Rotary Bevel Shear, 3/4" cap.

Marshalltown Throatless Shear, 1/4 cap.
No. 5 Marvel Hack Saw, B.D., 6" x 6"
No. 3 Cin. Pl. Mill. Mcne., belt dr.
10" Garrison Pow. Press Brake, 16 ga.
300 lb. Bradley Upright Hammer.
No. 3 W. & M. Surf. Ginder, C. S.
32" Cinc. M. D. heavy duty Shaper.
35" x 56" Tumb. Brl B.D. self-contained.
20" x 10" Hendey Lathe dbl. friction CS.
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24" Back Geared Stockbridge Shaper.

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- 20" x 10" American Geared Head Lathe, motor drive.
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- 18" Cincinnati Duplex Milling Machine, motor drive.
- 6" Cincinnati Bickford Plain Radial, gear box, motor drive.
- No. 2 Brown & Sharpe Surface Grinder with magnetic chuck.
- No. 2-X Garvin Automatic Tapping Machine.

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Heim Centerless Grinder.
No. 2 B. & S. Automatic.
22" Barnes S. Spindle Drill, Tapping Attachment.
No. 6 Gardner Disc Grinder.
No. 13 B. & S. Production Miller.
No. 3 B. & S. Vertical Mill.
No. 2 Cincinnati Vertical Mill.
1" Spindle Landis Threader, motor drive, lead screws.
No. 2 Knight Mill & Drill.
D-6 Colburn Drill.

Waltham Thread Mill.
12"x5" Monarch Lathe, Q. C. G., Motor Drive, with motor.
14"x5" Monarch Lathe.
18"x8" Lodge & Shipley Lathe.
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No. 3 P. & W. Die Sinker, with cherrying attachment.

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Grinders, Nos. 1 & 1½ Cin. tool & cut.
Grinders, Norton 10x50, cylindrical.
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Lathe, 14x6 Sidney, quick ch. gear.
Lathe, 34x10 Wolcott, q. c. g., comp.
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72" Colburn, Power Rapid Traverse.
48" Colburn, Power Rapid Traverse.

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36"x26" Bridgeford, Full Grd. Hd.
30"x22" Lodge & Shipley, 16 sp. hd.

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No. 2 Kempsmith Maxi-Mill, P.R.T.
Becker Vertical Miller, Model C.

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84" Diamond Face, 36" Seg. Wheel.
14" P. & W., Surface, Vert. Ball Bear.

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Leland & Gifford, Avey, 20"
and 25" Barnes B. G., P. F.
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Grinders, No. 14-20 Gardner disc b.
b., m. d.; No. 2 Oakley p. f., tool
& cut.; No. 18H Portable Safety
Grinder, Motor Drive.

1 & 2 B. & S. plain, univ.; No. 2
Cincinnati Univ., No. 2 Kempsmith
univ., 24" Cincinnati duplex.
Nibbler, No. 1 Campbell.
Planers, 24x6' & 8' G.ay, 1 head.
Power punch, Nos. 4 & 6 Whiting.
Punch presses, O.B.I. No. 3 Nia.,
Nos. 93 & 94 Bliss-Consolidated;
No. 68-F Niagara double crank,
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const.
Horning press, No. 39 Bliss.

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18"x8' SIDNEY LATHE, geared head, motor in base, taper attachment and chucks—like new; 24" Cincinnati Duplex Miller.

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9x9 and 13x16 Peerless motor dr.
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tap. att.; 16x8 Monarch; 17x8, Le-
Blond grd., hd., m. d.; 18x8 Whit-
comb-Blaisdell m. d., t.a. & chks.;
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Roll, 10' Bertsch, drop end housing.
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No. 2 W. & S.
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Shears, 5, 10' Niagara 3/16" m. d.
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Welders, Spot, 5 K.W. Dyer; 17 KVA
Thomson-Gibbs, 15 K. W. A.E.F.
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TOLEDO No. 669 Coining Press; 2000 ton capacity, tie rod construction.

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Gisholt 42" Vertical Mill, 2 heads.
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Giddings & Lewis No. 0 horiz.

Gear Equipment:
Gleason 15" Spiral Finisher.
Gleason 15" Spiral Roughing Mch.
Fellows No. 6, 61, 65, 615, Shaper.
Fellows No. 7, 71, 712.
Gould & Eberhardt 96H Hobber.
Pfaudler No. 4 Hobber.
Jones Superior 78" Hobber.

Grinders:
Landis 6x18, 10x36, 10x72, 10x96.
Norton 10x72; 18x96; 18x120.
Brown & S. No. 1, 2, 3, 13 Univ.

Milling Machines:
Cincinnati No. 2, 3, 4 Horizontal.
Cincinnati No. 2, 3, 4 Vertical.
Cincinnati 24" Duplex Automatic.
Cincinnati 24" Single Automatic.
Milwaukee No. 2B.
Ingersoll 24x24x18" slab.
Ingersoll 24x24x13" adj. rail, 3 hds.
Lees Bradner No. 12, Thread.

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No. 93E Toledo double crank, 5½" shaft; 8" stroke with air cushions, motor drive.
No. 92½A Toledo double crank, 5" shaft, 8" stroke mtr. dr.
No. 664 Toledo knuckle joint embosser, 600 ton special width 40", 4" stroke motor drive.
5½" 6-spindle New Britain Auto. Screw Mch. Serial 13000.
No. 2 Van Norman duplex miller, sub hd. and index centers.
No. 6 Becker Vertical Miller and Rotary table.
14"x72" Norton grinder with countershaft.
Several Cleveland automatics, ½" to 3½", Models A and B.
Note: some of the above presses new in 1930 and used VERY little.

A. D. White Machinery Co., 108 N. Jefferson St.,
CHICAGO, ILL.

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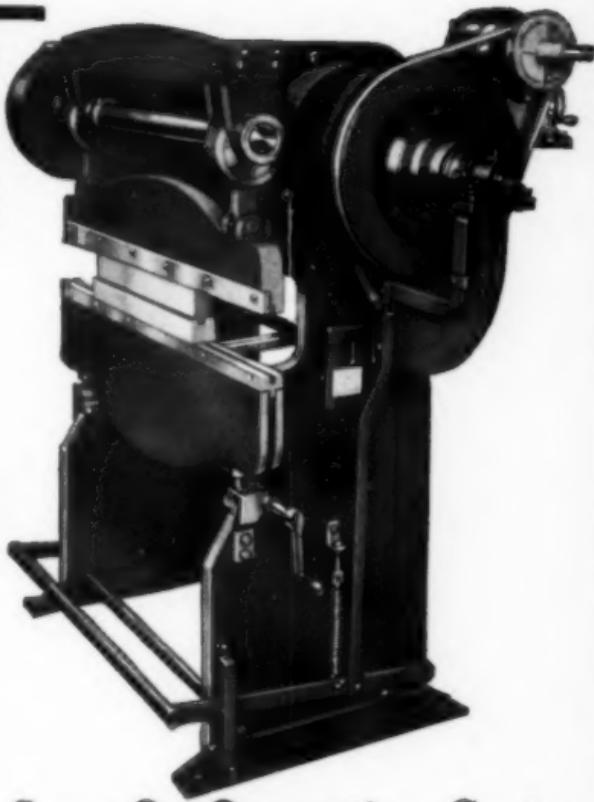
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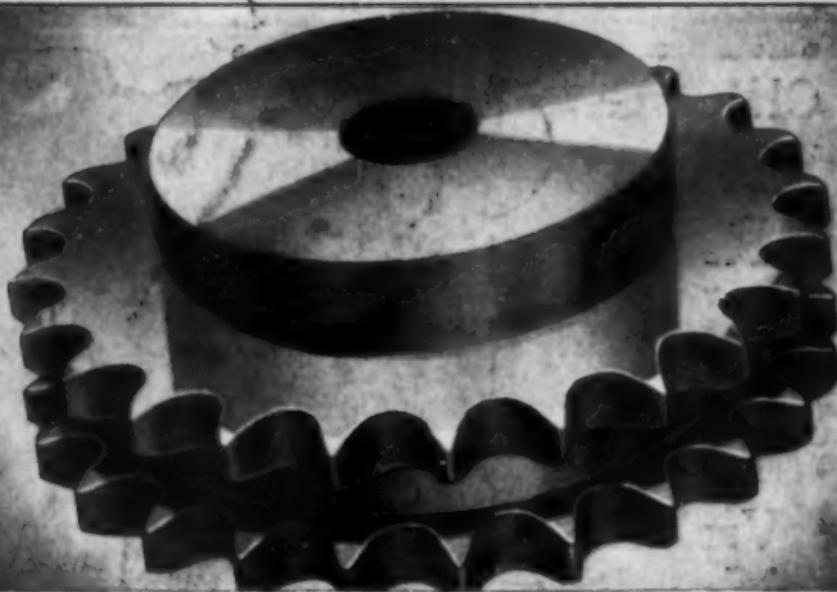


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